

# ROM

MAGAZINE OF THE ROYAL ONTARIO MUSEUM

volume 41: number 3  
2008/2009 winter

**PLUS:**

An Art Conservator's  
Tricks of the Trade  
Dead Sea Scrolls  
at the ROM

## World's Oldest Bat

What It Tells Us About Evolution

Winter 2008 / 2009

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Franklin Carmichael

"Red Pines" 1925  
40" x 48" oil/canvas



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## New Year, New Look for ROM magazine

**Next time you see us**, in spring 2009, we'll be sporting a dramatic new look. Our fresh design will showcase new editorial by renowned food writer James Chatto and shopper extraordinaire Karen von Hahn. Returning articles will include such favourites as "Backyard Biodiversity." Our publishing schedule remains quarterly, the first week of March, June, August, and November.

We'll also be more environmentally friendly as we make the switch to Forest Stewardship Council (FSC)-certified paper stock. In terms of content, our redesigned March edition will be our first-ever "green" issue. In it, ROM ornithologist Allan Baker tells of his work conserving vital habitat for migratory birds. As well, we survey seven biologists on how they are using DNA "bar coding" technology to identify the world's wildlife, the first step in understanding the web of life and how to save our most vulnerable species.

### **Please let us know how we are doing.**

As we revamp the look and feel of the magazine, we'd love your feedback. Let us know which are your favourite articles, regular columns, or topics by contacting us at [magazine@rom.on.ca](mailto:magazine@rom.on.ca).

JANET KIMBER



"Making a commitment to a public collection gives incredible meaning to my work," says ROM paintings conservator **Heidi Sobol**. "It's a profession I've been aiming for since the age of 8." That's when she witnessed a neighbour's kid slapshot a hockey puck through a large painting stored in their garage. The incident sparked her interest in the world of art conservation "To Conserve and Protect." "I loved art and was intrigued by science: art conservation brought these two interests into balance for me," she says. Sobol earned her Masters of Art Conservation at Queen's. As a member of the Canadian Association of Professional Conservators, she has worked at many North American conservation institutions, and most recently operated a successful private conservation lab in Halifax. Sobol brings a high level of care and conserve to the ROM's paintings . . . just no hockey-playing near the collections.

Although he manages the ROM's famous collection of fossil vertebrates, including dinosaurs, assistant curator **Kevin Seymour** was *not* a kid who madly loved dinosaurs. More enamoured of fish, snakes, and

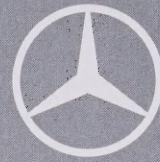
BRIAN BOYLE, ROM



birds as a child, he didn't fall into paleontology until graduate school at the University of Toronto. Now a specialist on fossil mammals, and fossil cats in particular, Seymour also works on Ice Age faunas of North and South America. He has done fieldwork in Mexico and the USA as well as Canada, most recently in Toronto at the Don Valley Brickyards.

For the five years leading up to the opening of the new fossil galleries, Seymour was heavily involved in planning, writing text, and obtaining new specimens, primarily for the Reed Gallery of the Age of Mammals, but also for the Temerty Galleries of the Age of Dinosaurs, with fellow assistant curator Janet Waddington. Obtaining the new fossil bat "Batting Order," which was published in *Nature* magazine, was just one of many exciting exploits. Seymour is involved with teaching Earth Evolution at the University of Toronto, and has been a frequent contributor to local media on a variety of topics, in particular to TVO's *More to Life* and most recently to Dinosaur Days on *TVO Kids*.





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# HONOURING THE "RIGHTS OF THE SOUL"



ROM  
MESSAGE

**The holidays, for many of us,**  
mean enjoying time with loved  
ones, celebrating our collective  
humanity and all that we have to  
be thankful for in this world. They  
can also be a time of renewal and  
reflection—a moment to press  
“pause” on our busy lives and see  
beyond the next e-mail, the next  
item on our “to-do” list, to our  
vision of how we want to shape  
our world.

The ROM is helping to shape  
our world by transforming itself into  
one of the world's great museums. As  
you know, the permanent galleries  
within the Michael Lee-Chin Cry-  
stal are complete. The next galleries to  
open will be the Teck Suite of Gal-  
leries: Earth's Treasures on December  
20, 2008, and the Schad Gallery of  
Biodiversity in March 2009. These  
galleries will share the story of life on  
Earth from the beginning—from our  
world-famous meteorite collection  
to an exploration of the vast diversity

of life on our planet.

I'm so proud to be a part of this  
literal “rebirth” of the ROM and to  
help fund its transformation. In my  
first year as president and executive  
director of the ROM Governors I  
have met so many amazing donors,  
Members, and volunteers. Your  
generous support indicates that you  
understand fundamentally what my  
mother-in-law called “the rights of  
the soul.” You are nourished by the  
ROM's rich and diverse collections,  
programs, and so much more. I hear  
wonderful stories of legacies of  
family giving—evidence of strongly  
held beliefs of “giving back.” Thank  
you for making my first year so re-  
warding. I think it's safe to say that  
our steadfast donors—and those of  
you who let the ROM feed your  
soul—will see our transformation  
through to its successful conclusion.

Marie Bountogianni is president and  
executive director of the ROM Governors.



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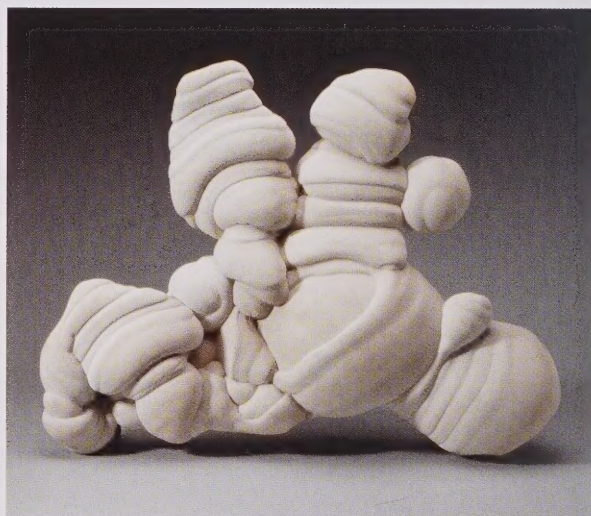
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## TECK SUITE OF GALLERIES

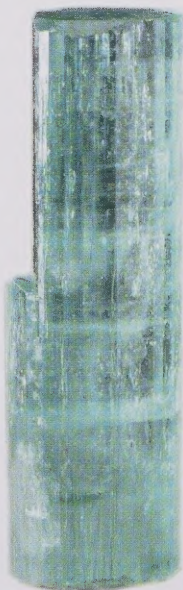
OPENS DECEMBER 20, 2008 MORE THAN 2,300 SPECIMENS OF MINERALS

**"Everything we use** in our daily lives actually comes from one of only two sources: it is grown and harvested or it is mined from the Earth," says Donald R. Lindsay, president and CEO of Teck Limited and member of the ROM's Board of Governors. "The interactive galleries in the Teck Suite delve into the science behind these resources and help people learn more about the key minerals that support their lives."



Under the umbrella of the Teck Suite of Galleries: Earth's Treasures, the Vale Inco Limited Gallery of Minerals, the Gallery of Gems and Gold, and the Canadian Mining Hall of Fame Gallery showcase the ROM's exceptional specimens of minerals, gems, meteorites, and rocks, a collection considered one of the finest in North America.

Minerals form over a wide range of temperatures, pressures, and environments, some crystallizing from extremely hot magma deep within the Earth, others from volcanic gases, still others from watery solutions. Each variety of crystal needs a spe-



cial confluence of circumstances in order to grow. A geode of amethyst, the highly prized purple variety of the mineral quartz, is displayed in the Vale Inco Limited Gallery of Minerals as an example of how the well-formed crystals grew in 130-million-year-old volcanic rocks from southern Brazil. But there are localities famous for mineral growth right here in Canada, one of them being the Jeffrey Mine in Quebec's Shipton Township, famous for prehnite and the beautiful grossular crystal, a variety of garnet.

The gallery also explores how the world's more than 4,000 different mineral species are classified by chemistry and crys-

BERYL: PURCHASED THROUGH A GIFT FROM THE LOUISE HAWVEY STONE CHARITABLE TRUST. CAVANISITE: GIFT OF MRS. HERITHA HAIST. IN MEMORY OF HER LATE HUSBAND DR. M. HAYS FROHBERG. M47100 / © ROYAL ONTARIO MUSEUM. ALL RIGHTS RESERVED.



# ES: EARTH'S TREASURES

ROCKS, METEORITES, AND GEMS WILL BE ON PERMANENT DISPLAY

tal structure and how mineralogists and geologists use physical properties, such as hardness, transparency, and lustre, to identify each species. "Complex gem and mineral 'recipes' are broken down and explained in the galleries," says Dr. Kim Tait, an associate curator of mineralogy at the ROM. "The complexities of minerals and mining are made easy to understand."

One section of the gallery showcases the ROM's meteorite collection, which contains 100 different specimens. Some meteorites formed from collisions between asteroids more than 4.5 billion years ago while others are fragments from the Moon or Mars. These oddities from outer space reveal the chemical building blocks that make up our universe and the history of our own solar system.

A walkway to the Gallery of Gems and Gold is lined with some of the ROM's largest and most impressive mineral specimens, among them a sandstone formation known colloquially as a *gogotte*—a bizarre natural structure formed from concretions in 30-million-year-old sands left by an ancient river system in France. Inside the 800-square-foot room designed specifically to highlight gems, crystals, and precious metals, is the gallery's inaugural exhibition, *Light & Stone: Gems from the Collection of Michael Scott* (see page 8 for details).

The Canadian Mining Hall of Fame Gallery showcases the importance of the mining industry in our everyday lives and highlights the exceptional contributions of Canadians to this industry.

A bilingual, interactive video wall portrays the biographies and personal stories of Hall of Fame inductees and explains how mining touches our lives. Some short

videos explore minerals, such as silver, titanium, and zinc, and another depicts the latest mining techniques.

Visitors will come away from the Teck Suite of Galleries: Earth's Treasures with a renewed awe of our natural history and an appreciation of Canada's role as an international leader in mining.

PURCHASED THROUGH A GIFT FROM THE LOUISE HAVVEY STONE CHARITABLE TRUST



**Opposite page, left:** The ROM's specimen of *cavansite*, a mineral first discovered in Oregon in 1973, is among the world's finest. *Wagholi Quarry, Pune, Maharashtra State, India.* **Right:** Sandstone concretions or "*gogottes*" are bizarre natural formations created when sand grains are cemented together by mineral-rich ground waters. Sand quarry near Chartres, France. **Bottom:** The mineral *beryl* is more commonly recognized by the variety name, such as *emerald* (green) or, as in this specimen, *aquamarine* (blue). Brazil.

**This page, above:** This specimen is *gypsum*, the same mineral used to manufacture gypsum wall board for the building trade. This type is often called *ram's horn gypsum*, in allusion to its shape. *Vieja Mine, Chihuahua, Mexico.*

## MEMBERS' SNEAK PEEK

Friday, December 19, 2008,  
10 am to 9:30 pm. Be the first  
to see the new galleries.

## FREE TOURS

Given by the ROM's Department  
of Museum Volunteers at regularly  
scheduled times. For details, visit  
[rom.on.ca/visit/calendar](http://rom.on.ca/visit/calendar).

## MINERAL FAST FACTS

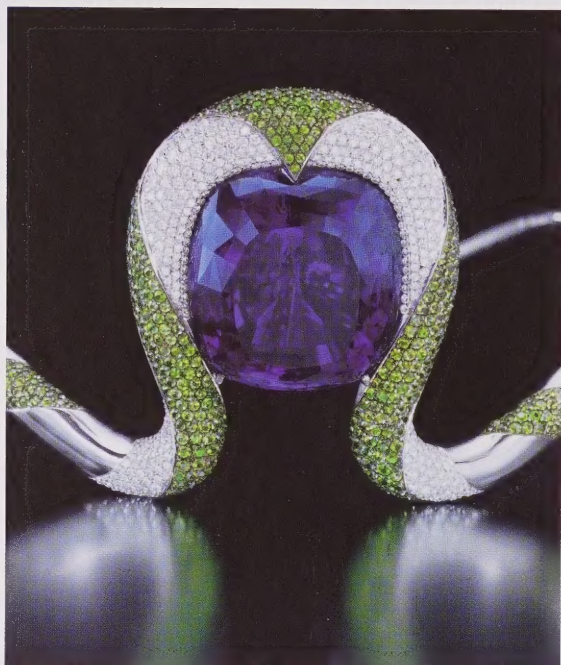
- Widely different mineral species sometimes have the same chemical composition. Graphite, one of the softest substances on Earth, consists of the same elements as diamond, the hardest naturally formed substance.
- A crystal's hue is determined by how it absorbs parts of the visible colour spectrum. Often, the rich colours seen in crystals are the result of impurities or tiny defects, without which the crystals would appear colourless.
- The ROM's largest meteorite, a fragment from Mars, is one of only some 38 known Martian meteorites in the world.



# LIGHT & STONE: GEMS OF MICHAEL SCOTT

DECEMBER 20, 2008, TO MID-DECEMBER 2009 • ONE

PHOTOS BY ERICA AND HAROLD VAN PETT PHOTOGRAPHY



**Left:** This tiara, called the Queen of Kilimanjaro, is set with the world's largest faceted tanzanite gem. Santa Barbara, California.

**Right:** "Pigeon's blood" rubies, such as this 10-carat stone set with diamonds, are among the world's finest rubies. Mogok, Burma.

**When you think of emeralds** do you think green? You may be surprised to learn that traditional gems come in a variety of colours. Beryl, the variety of stone that includes emerald, ranges from pink morganite and blue aquamarine to the rare red emerald and the extremely rare colourless goshenite. Rare garnets, prized for their diamond-like brilliance, come in every colour except blue with the two most desirable species—demantoid and tsavorite—being green. Even diamond has blue, yellow, cognac, orange, green, and purple forms.

Breathtaking and unmatched specimens of precious stones like these, as well as gem crystals, jewellery, and gem artworks, are featured in *Light & Stone: Gems from the Collection of Michael Scott*, on display in the ROM's Gallery of Gems and Gold. Arguably the most important private collection in North America, the Michael Scott Collection has few rivals in the world outside royal fam-

ilies. More than 200 superb pieces, all carefully chosen by Scott, represent the quality and diversity of crystals and gems.

Among the exhibition's highlights is a spectacular tiara featuring the world's largest faceted tanzanite encircled by 803 rare tsavorite garnets and 913 brilliant-cut diamonds.

"Collecting the world's largest and best examples of gem species has been my passion for almost 25 years," says Scott, who was also the first CEO of Apple Computers. He has devoted himself to learning what makes the right gem a priceless treasure while another is considered almost worthless.

His collection contains numerous rarities and newly discovered stones. The rare tanzanite, a relatively new mineral discovered in 1968 by Maasai herdsman in the foothills of Mt. Kilimanjaro in Tanzania, has an entire section devoted to it. Another case is filled with another new gem



# FROM THE COLLECTION

OF THE WORLD'S GREATEST PRIVATE GEM COLLECTIONS



**Left:** This piece from Sri Lanka features a 64-carat natural royal blue sapphire guarded by a gold cobra.



**Right:** The central demantoid garnet in this c. 1850 antique ring is surrounded by 10 rose-cut diamonds.

species—the Paraiba-type tourmaline discovered in the 1980s in northeastern Brazil.

Other rarities are a “rainbow” calcite, which has the unique ability to separate and reflect light into its spectral colours, and the world’s largest faceted benitoite gem, a stone the colour of blue sapphire but with the fire and reflective properties of diamond. Many spectacular traditional gems are also on view, including an entire case of emeralds. One of the highlights in this family of gems is the rare “pigeon’s blood” ruby.

But going beyond the beauty of the crystals themselves, Scott has also explored the human factor in cut gemstones. From the renowned gem-carving villages of Idar

and Oberstein in southwestern Germany, he has acquired numerous sculptures, more than 15 of which are on display. Six carved works are by Bernd Munsteiner, who pioneered a technique he dubbed the “fantasy cut,” which allows each side to reflect against the other. And John Marshall, a Seattle-based artist and silversmith, also collaborated with Scott to create unique silver sculptures that complement Scott’s gems and crystals.

“I call this exhibition *Light & Stone* because it’s the union of these two opposites that brings gemstones to brilliant life,” says Scott. “I hope that ROM visitors feel my same wonder and awe when experiencing the amazing beauty nature creates.”

## BEYOND THE EXHIBITION

### Members’ Preview

Friday, December 19, 2008

10 am to 9:30 pm

### Free Tours

Given regularly by ROM docents. For details, visit [rom.on.ca/visit/calendar](http://rom.on.ca/visit/calendar).

*Light & Stone* is part of the ROM’s *Season of Gems*, which includes the opening of the Teck Suite of Galleries: *Earth’s Treasures* on December 20, 2008, and *The Nature of Diamonds*, presented by De Beers Canada.



# A FOSSIL PARADISE: THE DISCOVERY OF THE BURGESS SHALE BY CHARLES D. WALCOTT

JANUARY 31 TO APRIL 26, 2009

SMITHSONIAN INSTITUTION ARCHIVES, WASHINGTON, DC.



Charles Doolittle Walcott (1911) in front of his excavations at the Burgess Shale.

**The year 2009** marks the 100th anniversary of Charles D. Walcott's discovery of the Burgess Shale, a famous fossil deposit now listed as a UNESCO World Heritage site. In commemoration, the ROM presents *A Fossil Paradise*, featuring objects from the ROM, the Smithsonian Institution, and Parks Canada, including vintage photographs, an original field notebook, letters, and other objects related to Walcott's geological activities in the region.

Located on Fossil Ridge in British Columbia's Yoho National Park, the original discovery site, known today as the Walcott Quarry, has yielded an amazing diversity and abundance of exceptionally well preserved fossils of soft-bodied animals. These animals lived just after the Cambrian Explosion, a time when primitive forms of most animal groups still known today first appeared in the fossil record.

Many of these animals had a seemingly bizarre appearance—oddly placed limbs, spikes, and eating apparatuses not seen in today's biodiversity. The 505-million-year-old shale has provided the most comprehensive view of Cambrian life anywhere.

But beyond its importance to science, the Burgess Shale is a gorgeous locale, nestled in the Canadian Rockies. *A Fossil Paradise* displays several panoramas taken by Walcott during his geological explorations. One of them, at 2.4 metres (more than 8 feet) wide, is the largest photograph ever published by *National Geographic*.

The exhibition also showcases tools and objects of everyday life fortuitously discovered by the ROM during several field expeditions to the Walcott Quarry, including a bundle of



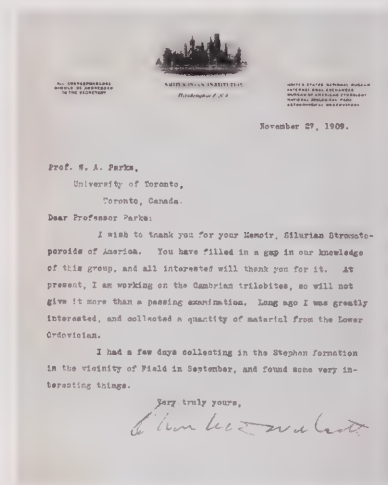
JEAN-BERNARD CARON, ROM

*Marrella splendens*, one of the first Burgess Shale fossils discovered by Walcott in 1909.

newspapers from 1916 used for packing fossils. A 1909 letter written by Walcott mentions the discovery of the Burgess Shale to University of

Toronto professor A. Parks, who later became the first director of the ROM Museum of Palaeontology.

Years after Walcott's discovery, the ROM played a significant role in furthering knowledge about the Burgess Shale's remarkable biota. From 1975 until 2001, ROM paleontologist



Letter to A. Parks from Walcott, 1909, mentioning his discovery of the Burgess Shale.

Desmond Collins collected tens of thousands of specimens, unearthing so many new fossils that the ROM now has the world's largest Burgess Shale collection. Today, ROM paleontologist Jean-Bernard Caron carries on the ROM tradition by continuing fieldwork and research on Cambrian animals from the Burgess Shale and beyond.

This small but captivating exhibition offers visitors a chance to walk in Walcott's shoes, and see the beauty that surrounded him as he uncovered a new chapter in the history of life.



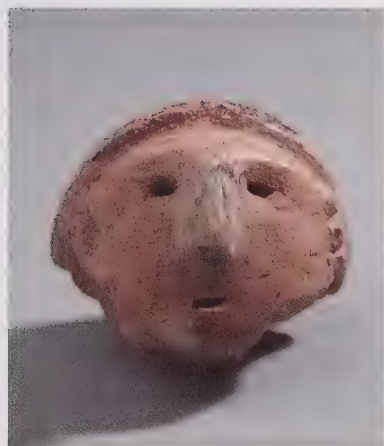
# CONTINUING EXHIBITIONS

## Unbuilt Toronto: The City That Could Have Been

■ In partnership with the Toronto Society of Architects, the ROM presents a two-part collection of images of unbuilt Toronto projects by practicing architects and designers. "We want to bring projects to light to best understand whether Toronto dodged a bullet or missed an opportunity," says TSA vice-chair Phil Goodfellow.

*Hilary and Galen Weston Wing, Level 2 • Until January 11, 2009*

## Mysteries of Ancient Ukraine: the Remarkable Trypillian Culture (5400–2700 BCE)



Trypillian male portrait, 3750–3500 BCE.

■ The world's first large-scale exhibition on Trypillia, this exhibition explores the compelling, sophisticated culture that existed in what is now Ukraine 5,000 to 7,000 years ago.

*Third Floor Centre Block • Until March 22, 2009 • Exhibition Patron: Ukrainian Canadian Foundation of Taras Shevchenko • Benefactor: Dopomoha Ukraini Foundation and Wrzesnewskyj Family*

## The Nature of Diamonds

■ The exhibition showcases some 500 magnificent pieces of jewellery and stunning gemstones drawn from major museums and private lenders around the world.

### The Incomparable Diamond:

As part of the exhibition, the ROM will be displaying The Incomparable Diamond, the third-largest cut diamond ever recorded. The rough



diamond was found by a young girl in the Mbuji-Maya district of the Democratic Republic of Congo (formerly Zaire) in the early 1980s as she played in a pile of rubble from a nearby diamond mine.

*Garfield Weston Exhibition Hall • Until March 22, 2009 • Presented by De Beers Canada. • The Nature of Diamonds is organized by the American Museum of Natural History, New York ([www.amnh.org](http://www.amnh.org)), in collaboration with the Royal Ontario Museum, Toronto; The Field Museum, Chicago; and the Houston Museum of Natural Science. The Incomparable Diamond is loaned by Marvin Samuels, Premier Gem Corp., New York, and Louis Glick, Rose Trading, New York and Hong Kong.*

GIFT OF CONRAD BIERNACKI AND BRIAN MUSSELWHITE



Wedgwood nautilus-shell footed bowl c. 1946–1960.

## Wedgwood: Artistry and Innovation

■ Through some 100 historical and contemporary pieces of Wedgwood wares, the show explores the genius of founder Josiah Wedgwood 1 (1730–1795).

*Samuel European Galleries, Third Floor*

• Until July 5, 2009 • Paint generously donated by: Farrow & Ball

## OUT OF THE VAULTS Sitting Bull's Headdress

■ The great Sioux warrior Sitting Bull holds legendary status in North American and First Nations history. His war bonnet, c. 1875, is now on temporary display.

*Daphne Cockwell Gallery of Canada: First Peoples • Until September 2009*



Sitting Bull's war bonnet, c. 1875.



## PREMIER MCGUINTY ANNOUNCES THE DEAD SEA SCROLLS TO COME TO THE ROM A ONCE-IN-A-LIFETIME SHOW



**From left to right:** Co-chair of the exhibition's Community Advisory Panel Mohammad Al Zaibak, co-founder, president and CEO of Canadian Development and Marketing Corporation (CDMC) and CDM Information Inc.; co-chair Jonas Prince, chairman of Realstar Group; head of the Department for the Treatment and Conservation of Artifacts at the Israel Antiquities Authority, Pnina Shor; *Dead Sea Scrolls* guest curator, Dr. Risa Levitt Kohn; Ontario Premier, Dalton McGuinty; Ontario Minister of Culture, Aileen Carroll; Consul General of Israel, Amir R. Gissin, ROM director and CEO, William Thorsell. Third co-chair, Tony Gagliano, CEO of St. Joseph's Media, was not present.

### In October, Ontario Premier

Dalton McGuinty announced that the exhibition *Dead Sea Scrolls* is coming to the Museum next June for a six-month engagement. One of the most important exhibitions in the ROM's history, it offers visitors a once-in-a-lifetime opportunity to view these historical treasures. They have been the subject of great scholarly and public interest as well as heated debate since their discovery more than 60 years ago. A collaboration of the Israel Antiquities Authority (IAA) and the ROM, it is the largest and most comprehensive exhibition of these materials ever assembled in Canada.

Sixteen of the scrolls will be on view at the ROM, eight during each three-month period. Fragments from the books of Genesis, Deuteronomy, and Psalms will be on display. Also showcased will be artifacts from the

ROM's own collection; pieces from Jerusalem during the period of the Second Temple; and artifacts from Khirbet Qumran, the ancient site closest to where the scrolls were discovered by Bedouin goat herders and ar-



Guest curator Risa Levitt Kohn.

chaeologists between 1947 and 1956.

A Distinguished Lecture series will feature 12 internationally respected scholars of the Dead Sea Scrolls and Jerusalem's Second Temple period, among them Dr. Emanuel Tov, the J. L. Magnes Professor of the

Bible at Jerusalem's Hebrew University, and Dr. Yuval Peleg, IAA Archaeologist and co-director of the most recent excavations at Qumran.

"This is a great opportunity for visitors and it will attract people to the city from all over North America," says Premier McGuinty. He noted in his remarks an early investment by members of the Tanenbaum family in memory of their mother, Anne. Special guests at the announcement



Premier Dalton McGuinty with Dr. Marie Bountrogianni, president and executive director, ROM Governors, and Joey Tanenbaum.

were Consul General of Israel, Amir R. Gissin; Ontario Minister of Culture, Aileen Carroll; Pnina Shor, head of the Department for the Treatment and Conservation of Artifacts at the Israel Antiquities Authority; and *Dead Sea Scrolls* guest curator, Dr. Risa Levitt Kohn.

"Among the scrolls are some of the oldest discovered texts of the Hebrew Bible—texts that have had an enormous influence on Western culture," says Levitt Kohn, who is also director of the Jewish Studies program at San Diego State University. "These scrolls shed light on the life, faith, and culture of ancient Judea."

*This exhibition was created by the Israel Antiquities Authority from the collections of the National Treasures in collaboration with the Royal Ontario Museum.*



## THE DEAD SEA SCROLLS PROJECT: MORE THAN AN EXHIBITION

The **Dead Sea Scrolls** are among the foundation documents of Western civilization. They constitute the earliest written sources for the Hebrew Bible / Christian Old Testament, and are considered as divinely inspired in the Muslim tradition as well. The Dead Sea Scrolls also contain sectarian texts on law, references to a Messiah, and warnings of the apocalypse to come.

To offer a selection of the most important of these scrolls at the ROM for six months in 2009 is thrilling and moving. One is caught off guard by the power of their presence, whatever one's faith or way of living in the world. The simple facts of their age, humanity, and influence are enough to provoke reflection and even awe.

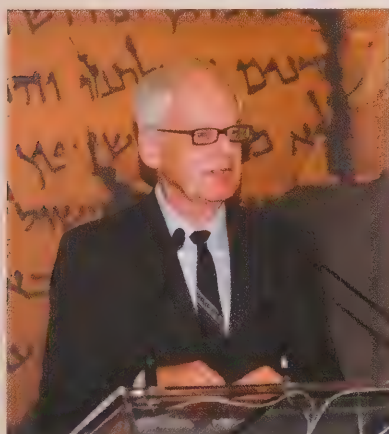
The ROM's project on the Dead Sea Scrolls will bring archaeology and culture together with unprecedented weight. We use the term "project" rather than "exhibition" to emphasize the scope of programming and partnerships that will accompany the scrolls. The presence of these documents in Ontario creates the ground for an extended public conversation

about shared roots and diverging paths. It invites us to explore how much we have in common as cultures and religions, and what marks us as distinctive, too. There is hardly a better jurisdiction in the world to engage in this conversation, given Ontario's potent diversity and traditions of intellectual freedom and democracy.

Counseled by a special Community Advisory Panel, and working with universities and cultural, religious, and educational organizations, the ROM will produce an ambitious series of public lectures, debates, and events in the context of the Dead Sea Scrolls. Twelve lectures on various aspects of the Dead Sea Scrolls research and archaeology will be given by eminent scholars from around the world. A number of public debates will be held at the ROM to expand the boundaries of how we generally think about the messages in these scrolls, and their effects in history. On weekends, diverse family programs will explore the source of the scrolls and their contents, and outside groups will be offered space at the ROM to conduct programs of their own.

The ROM is creating the Dead Sea Scrolls Project in partnership with the Israel Antiquities Authority. This original work of curatorship and education expresses the ROM's nature as a universal museum of cultures just four months after we open the Schud Gallery of Biodiversity, which sits at the core of our mandate on the environment. Thus, 2009 marks a vigorous transition at the ROM from the rebuilding of our facilities to addressing the great issues of our time through exhibitions, programs, research, and education. We look forward to seeing you in the stimulating months ahead.

William Thorsell  
Director and CEO



William Thorsell, ROM director and CEO.

## TRUSTEE ELECTION RESULTS

The **membership program** is an important aspect of the Royal Ontario Museum's commitment to public access and accountability. Pursuant to the *Royal Ontario Museum Act*, ROM Members elect 3 of the 21 positions on the Board of Trustees. A call for nominations to fill one vacancy for a membership-elected Trustee was made in the spring 2008 issue of *ROM* magazine. Three candidates were duly nominated, and an election was held in May 2008.

Barbara Milstein was elected by the membership for the term of office July 1, 2008, to June 30, 2011. Barbara is a 16-year volunteer with the ROM, working in the Discovery Gallery and as a docent leading general Museum tours.

The ROM congratulates Barbara Milstein and looks forward to working with her on the Board. The ROM also thanks its Members for their interest and participation in the Trustee election.

## CALL FOR NOMINATIONS

MEMBERSHIP-ELECTED TRUSTEE  
POSITION ON THE ROM BOARD

**Another** of the membership-elected Trustee positions becomes vacant June 30, 2009. Nominations for this position will be accepted by the Office of the Secretary to the Board until noon on January 31, 2009. Each nomination must be supported by the signature of 25 (current) ROM Members (please include the membership numbers of the nominators). The vacant term of office is July 1, 2009, to June 30, 2012. Should more than one duly nominated candidate be eligible, an election will be held. For further details, call 416.586.5886.





COURTESY OF MICHAEL SKREPNICY

## ROM LEADS RESEARCH ON DINOSAUR BRAIN STRUCTURE

New study uses CT scans to explore inner structure of lambeosaur skulls

**A new study** led by ROM paleontologist Dr. David Evans reveals that the large, bizarre-shaped crests of the duck-billed dinosaurs called lambeosaurs were used as a means of communication. The study used high-tech CT scanning and 3D imaging technology to reconstruct the first-ever detailed look into the brain and inner ear of this group of dinosaurs. The results will be published in part in an upcoming special issue of the journal *The Anatomical Record*.

No modern animals have a structure similar to these dinosaurs' bony crests, which contain long convoluted nasal passages that loop up over the head. Paleontologists have long debated their function, suggesting variously that they heightened the sense of smell, functioned in temperature regulation, or acted as sound resonators for communication.

"The shape of the brain can tell us a lot about what senses were important in a dinosaur's everyday life, and give insight into the function of the crests,"

says Evans. He and colleagues Lawrence Witmer and Ryan Ridgely of Ohio University and John Horner of Montana State University used CT scanning to look inside the skulls and reconstruct the brains and nasal cavities of four different lambeosaur species.

The scientists found that the portion of the brain responsible for the sense of smell was relatively small and that the crest did not evolve to improve this sense. Computer models done by other researchers suggest that the crests could have been used to make low, bellowing calls, perhaps to call for mates or warn others of predators. These new CT scans documented a delicate inner ear, confirming that these dinosaurs could hear the low-frequency calls produced by the crest.

## ROM RECOGNIZED FOR ACCESSIBILITY EXHIBITION

**The Royal Ontario Museum** and partners Ryerson University and the Centre for Independent Living re-



BRIAN BOYIE, ROM

ROM Director and CEO William Thorsell with Dr. Catherine Frazee, codirector, Ryerson RBC Institute for Disability Studies Research, and cocurator of *Out from Under*.

ceived a 2008 Access Equity and Human Rights Award by the City of Toronto on November 27. The award

recognizes the exhibition *Out from Under: Disability, History, and Things to Remember*, installations of everyday objects that presented a compelling snapshot of the history of disabled people in Canada.



PHOTO BY JONATHAN MIDDLETON

## TIM LEE WINS 2008 SOBEY ART AWARD

**Vancouver** contemporary artist Tim Lee, who works in photography, video, text, and sculpture, has been named winner of the 2008 Sobeys Art Award presented by Scotiabank. One of five shortlisted artists whose work was displayed in the ROM's Roloff Beny Gallery this fall, Lee creates works that both replicate and re-imagine seminal moments in art history and popular culture.

## EDWARD S. ROGERS MEMORIAL LECTURE

THE TRADITIONAL WORLD VIEW OF THE LAKOTA / DAKOTA PEOPLE  
*For ROM Members Only*

**Ken Goodwill** of Standing Buffalo Reserve and Resident Elder and lecturer at the First Nations University of Canada will share his understanding of the traditional beliefs and worldview of his people in a present-day context.

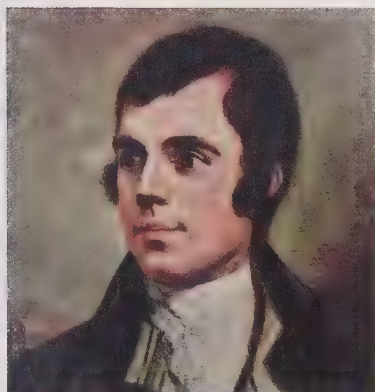
January 22, 2009, 7 to 9 pm

Registration is required. For details, visit [rom.on.ca/whatson](http://rom.on.ca/whatson) or call 416.586.5700.



# CELEBRATING SCOTTISH HERITAGE

ROBERT BURNS DAY, SUNDAY, JANUARY 25, 2009



Portrait of Robert Burns by Alexander Nasmyth, National Gallery of Scotland.

**Banish the winter** blahs with this grand event. It's entertaining, musical, ceremonial, historic . . . and delicious, too! The birthday of Scotland's national poet, who lived from 1759 to 1796, Robert Burns Day is celebrated around the world on January 25. And what better place to participate in the festivities than the ROM, where old blends with new, and artifacts range from ancient to modern. Whether you are very Scottish, somewhat Scottish, or not Scottish at all, this event is not to be missed.

The afternoon begins with traditional Scottish country dancing and a selection of Scottish music performed live on period-style instruments by some of Toronto's best music artists. The authentic music is very special to the ROM since the scores have been selected from the R. S. Williams Col-

lection held in the Rare Book Collections of the Museum's Library.

A ceremony is led by a piper followed by two Scots wearing kilts in their traditional family tartan proudly carrying haggis on a silver tray. Everyone will have the opportunity to taste—it's worth a try—but there will be plenty of shortbread if you're not ready for that level of Scottish commitment. A dedication is made to Robert Burns followed by more merriment and a heartfelt rendition of *Auld Lang Syne*.

Coordinating the event are two ROM Scotsmen: Ian McGregor, head science teacher in the Education Department, whose clan is, obviously, McGregor, a name at one time outlawed in Scotland for 200 years; and ROM librarian Arthur Smith of clan Davidson, whose Scottish ancestors immigrated to New Brunswick in 1820 from the Lowlands of Scotland.

The event takes place on Sunday, January 25, 2009, from 2 to 4 pm in the Signy and Cléopée Eaton Theatre. Dress for the event in traditional Scottish garb and be informally judged to win a great prize.

If you purchase your ticket before January 10, 2009, you can pick up a personalized certificate at the event, acknowledging not only your attendance at this first-time ROM event but your increased "Scottish Quotient."

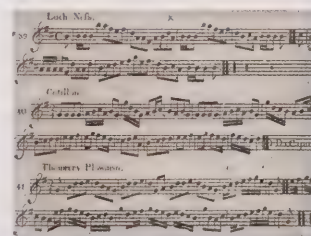


## DON'T MISS OUT!

To register for the ROM's Robert Burns Day event go to [rom.on.ca/programs](http://rom.on.ca/programs) or call 416.586.5871 for your free copy of the ROM's events and programs guide.

## MEMBERS

ROM Members receive a discount on all programs.



**Above:** Music score for a Scottish air from the ROM's R. S. Williams Collection. **Above right:** Scottish paperweight.

WHAT'S  
ON  
AT THE ROM | PROGRAMS



## A NIGHT AT THE MUSEUM

At the first-ever ROM Sleepover on Friday, November 7, 2008, 180 happy kids and parents explored Museum exhibits, took part in dino-themed hands-on activities, and enjoyed a DJ'd pajama party with karaoke. They even actually got some sleep. Here's what a few of them had to say:

"I liked being on the stage with all my friends at the DJ party. The music was really loud!" Isabella, age 5

"I wasn't scared being in the dark because all my friends were there, too!" Matthew, age 9

"We got to wear our PJs, see the museum at night, and even dig for dinosaur bones. That was pretty cool." Elliott, age 5

The next ROM Sleepover will take place Friday, January 9, 2009. For information, call 416.586.5797 or e-mail [programs@rom.on.ca](mailto:programs@rom.on.ca).

BRIAN BOYLE, ROM

## HO HO HOLIDAYS AT THE ROM

**This holiday season** the ROM celebrates the opening of the Teck Suite of Galleries: *Earth's Treasures* and *Light & Stone: Gems* from the Collection of Michael Scott with exciting hands-on programming for the whole family. Join in the fun: kids can make their own diamond tiara, construct scientific diamond models, sift through mine gravel for gems, pan for gold—even go on a prospecting hunt for *Earth's Treasures*.

ROM for the Holidays runs from December 27 to January 4, excluding New Year's Day. Activities take place from 11 am to 4 pm and are included with Museum admission.

## LOOKING AHEAD

**March Break 2009** will feature live animal shows by Earth Rangers in the newly opened Schud Gallery of Biodiversity, a Medieval Fair, the Sony Cybershot shooting gallery, and a wide variety of hands-on activities.

For more information on programs for kids, go to [rom.on.ca/programs/rom\\_kids](http://rom.on.ca/programs/rom_kids).



sleep tight  
& don't let the  
**dinosaurs**



**bite**

Global is a proud sponsor of ROMkids Sleepovers.





## A LEAF FROM HISTORY'S BOOK

TEA AT c5



**One legend has it** that the discovery of tea almost 5,000 years ago was a serendipitous moment: a leaf from a tea tree drifted unnoticed into Chinese Emperor Shen Nung's bowl of hot water and he became the first to sip the delicious infusion.

In Canada, the first shipment of tea was imported by the Hudson Bay Company in 1716. It took more than a year to arrive. At c5, Toronto tea drinkers will find that a pot arrives promptly at their table, set with fine Wedgwood china. The only difficulty at this afternoon tea is choosing which of the 10 tea varieties best accompanies the house-made sweets and savouries.

The classic Earl Grey has a twist of organic bergamot. Hints of spice enliven the Bombay chai, while a dark orange dulce teems with orange, vanilla, and jasmine-blossom notes. Then there's Darjeeling, said by some to be the "champagne of teas." Selected from the best estates in India's Darjeeling District, this tea is grown at a high altitude, which helps produce the distinctive floral lingering finish. One taste of these exotic blends and you'll know why tea smuggling became big business in 18th-century England when prices

for the brew went well beyond the average sipper's budget.

For Song dynasty emperor Huizong, white tea was the royal choice. Also less caffeinated, White Orchard white tea earns a place on c5's tea menu.

Take time during the frenzied holidays to enjoy your own serendipitous moment at c5. Afternoon tea costs \$35.

### DIAMOND GRADE

c5 has upped the ante on its already delicious afternoon affair with a deluxe Diamond tea offered Thursday, Friday, and Saturday afternoons and Saturday lunch. Enjoy such delights as black truffle



quiche, and cured foie gras puff pastry tart, along with Champagne or a Diamond cocktail in addition to sweets and tea. Cost: \$50.

### HOLIDAY TREATS

Until early January, enjoy a special holiday bar menu and Friday night jazz pianist. On Sundays a special holiday brunch is offered. The non-traditional take on holiday favourites is perfect for family groups.

For more information, go to [c5restaurant.ca](http://c5restaurant.ca) or call 416.586.7928.

## CONTACT INFORMATION

### Royal Ontario Museum

100 Queen's Park  
Toronto, Ontario M5S 2C6  
Website: [rom.on.ca](http://rom.on.ca)  
E-mail: [info@rom.on.ca](mailto:info@rom.on.ca)

### HOURS

- Saturday through Thursday  
10 am to 5:30 pm
- Friday 10 am to 9:30 pm
- Closed Christmas Day and New Year's Day

### ADMISSION PRICES

- ROM Members: FREE\*
- Adults: \$22
- Students and seniors with ID: \$19
- Children (4 to 14 years): \$15
- Infants 3 and under: FREE
- Half-Price Friday Night: Adults \$11; students/seniors \$9.50; children \$7.50

\*All adult Members must present a valid membership card and ID.

### MUSEUM MEMBERSHIP

- Individual \$90 / 1 year, \$160 / 2 years
- Family/Dual \$139 / 1 year, \$250 / 2 years
- Non-resident \$95 / 1 year, \$170 / 2 years
- Student \$50
- Explorers \$15 (in addition to ROM Membership)
- Curators' Circle \$175
- Museum Circle \$300
- Director's Circle \$600
- Young Patrons' Circle  
Single \$600 / Dual \$1,000
- Royal Patrons' Circle \$1,500+

### TELEPHONE NUMBERS

- Membership Services: 416.586.5700
- Switchboard: 416.586.8000
- Bell Relay Service: 711
- School Groups: 416.586.5801
- Museum Volunteers: 416.586.5513
- ROM Museum Store: 416.586.5766
- c5 Members Line: 416.586.8095
- Donations: 416.586.5660

### ATTENTION MEMBERS

Your privacy is important to us. The Royal Ontario Museum (ROM) and ROM Governors (the ROM's charitable foundation) share a special relationship and you may receive additional information from each. If you do not wish to receive it, contact [membership@rom.on.ca](mailto:membership@rom.on.ca) or call 416.586.5700.

Occasionally, we make our list of supporters available to other carefully screened organizations and selected groups that may be of interest to you. By allowing us to exchange your name, you are helping us support the ROM's education and research mandates. If you prefer not to have your name exchanged, contact us at the above listed e-mail address or phone number. The ROM and the ROM Governors do not sell their membership or donor lists to any third parties.

Should you prefer not to be contacted by our telemarketing office, please contact us at the above listed e-mail address or phone number.



## A GIRL'S BEST FRIEND FOR THE HOLIDAYS

If you've admired the spectacular diamond jewellery worn by Canadian Idol winner Eva Avila in her latest video *Give Me the Music*, you're in luck. Pieces by the same designer are now available at the ROM Museum Store. A new line, *Plumes des Diamants*, was created by award-winning Canadian jewellery designer Shelly Purdy exclusively for the ROM.

Purdy wanted the romantic diamond pieces, created in colours of rose gold, yellows, and whites, to be exquisite and light. A green diamond heart flutters within a cage of pavé diamonds in one pendant, protected,

even the smallest stones are Canadian, excavated north of Yellowknife from a mine that Purdy has personally visited. Normally, diamonds of this size are too small to carry the microscopic lasered identification number found on every larger Canadian gem. This novel branded guarantee is for the increasing number of buyers wanting to ensure they are buying an ethical product

Always creative, Purdy has been working with diamonds for 21 years. Rather than her staple engagement and wedding rings, she is offering the *Plumes des Diamants* collection and "achievement" rings, stacking rings that mark any achievement. "I saw a lot of strong beautiful women coming in and saying 'I'll come back when I find the guy.' But waiting for the prince to come to have a beautiful piece of jewellery just didn't sit right with me," she says. "You can have that ring now." Her own three rings represent her son, daughter, and her business, and she is reminded of them everytime she looks at the rings.

All the diamond jewellery in the ROM Museum Store and specialty shop located in the exhibition *The Nature of Diamonds* are from Canadian sources. Canadian manufacturer Polar Bear Diamond offers stunning

jewellery set with diamonds mined from the Northwest Territories and certified as mined, cut, and polished in Canada. Whether mainstream, or finest quality, (at prices from \$749 to \$7,550), these gems also make great gifts. There are also silver pieces by Niki Kavakonis, whose *Tip of the Iceberg* ring is displayed in *The Nature of Diamonds*. These beautiful jewellery pieces exemplify the miniature sculptural qualities perfected by this Canadian designer.

Not in the market for the real bling? Exquisite cut-crystal jewellery by Preciosa combines traditional craftsmanship and modern glassmaking. Top-selling line, *Crislu*, as seen in

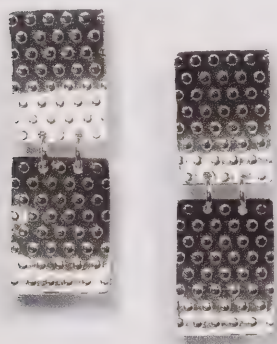


Bloomingdale's and Nordstroms, is made with high-quality cubic zirconium that looks and shines like diamonds. These platinum-clad pieces, from \$79.99 to \$219.99 come with a lifetime guarantee.

**Other fun holiday gifts:** bling-encrusted piggybanks, pens, champagne and martini glasses, chocolates in the shape of faceted diamonds, ice wine chocolates, elegant holiday ornaments, 2009 calendars, a fun line of acrylic jewellery, and Chanukah and Christmas décor items.

The main ROM Museum Store is open extended hours over the holidays. Check the ROM's web site at [rom.on.ca](http://rom.on.ca) for details.

Pendant by Shelly Purdy; silver earrings by Niki Kavakonis; diamond studs by Polar Bear Diamond.



ourselves from the harshness of world. The ROM itself, with its aura of grandeur, suggested to her the ornateness, sense of history, and the idea of protecting precious things. "The glamorous, old-fashioned look of this jewellery has an art deco appeal to it," she says. The pieces (\$1,200 to \$9,250) would make memorable holiday gifts.

Each piece by this creative artist—inspired to be a goldsmith and designer by family members uncle goldsmith Harry Claxton and cousin Bob Mackie—is numbered and signed. The brand "Canadian Diamonds by Shelly Purdy" certifies that



# EXPLORATION

## Made For Masquerade

### Carved wooden Ikem headdresses

covered with stretched untanned antelope skin are a characteristic art form of the Ejagham, or Ekoi, peoples of southeastern Nigeria and western Cameroon. Evident in this striking example from Nigeria are two beautification methods used by Ejagham women—delicate scarifications, or tattooing (a type of skin decoration very common in Africa), and filed teeth, which are realistically rendered in the mask. The elaborate horned hairdo was a style worn by young women at “coming-out” ceremonies, which followed their initiation period, a time during which they would be fed particularly nutritious foods and instructed by elders, and afterwards considered marriageable women.

The ROM's mask was acquired in 1935 and was likely made around the turn of the last century or early in the 20th century. Secured with a string over the head, such headdresses were worn by male dancers along with long gowns that concealed the body. Masquerades representing beautiful women were often accompanied by a male counterpart on festive and ceremonial occasions. The idealized portrayal of female beauty was intended to honour women, who were highly respected in the society, while the male-female ceremonial performance emphasized the importance of both genders in the construction of this society.

—Silvia Forni

Carved masks  
of the Ejagham people  
honoured women



# ONS



## Cruikshank Then and Now



### The preeminent anglophone

Canadian silversmith of his generation, Robert Cruickshank dominated the silver craft in Montreal throughout the late 18th century, until about 1805. His influence even extended to the next generation: most Montreal silversmiths apprenticed under him. Cruickshank himself trained in London, where he operated a workshop before emigrating in 1773.

Recently, the ROM was able to acquire this outstanding pair of Cruickshank tureens. The first pieces from Cruickshank's London phase to enter a public collection, they are displayed in the ROM's Sigmund Samuel Gallery of Canada adjacent to a four-piece tea service from his Montreal phase. Together they provide the rare opportunity to compare the before and after work of an immigrant master craftsman.

—Ross Fox



ACQUIRED FROM MRS. F. N. G. STARR. 950.82.12/BRIAN BOYLE, ROM.

## No Idol Threat

But potent symbol of faith

An integral part of life and worship in the Orthodox faith, icons were used as focal points for contemplation, meditation, and prayer. Today, they still hold enormous importance in the Orthodox Church. The first Sunday of Great Lent, known as the Feast of the Triumph of Orthodoxy, is dedicated in their honour. Often taking the form of painted wooden panels, icons typically depict scenes from the lives of Christ and Mary. But in authentic Byzantine and Orthodox tradition, no representations of God the Father exist in human form, in keeping with the understanding that God, in divine essence, is unseen. Not worshipped as idols, but venerated with the respect due to the persons depicted, icons are understood as testaments to the Christian doctrine of the Incarnation—of the Word made Flesh. As Orthodox theologians are quick to point out, it is this doctrine that makes representational religious art possible.

The ROM holds an impressive collection of religious icons, many donated in 1978 by Dr. P. J. Janetos. Most are from areas once controlled or influenced by the Byzantine Empire. Among the ROM's icons is this example from Russia or Ukraine, probably 17th century, of the "Kazanskaya" type. Known in English as "Our Lady of Kazan," it depicts Mary with the Christ Child standing at her left side. It repeats a prototype that, according to tradition, was found in Kazan, Russia, in 1579. This icon was reproduced in the millions prior to the 1917 Russian Revolution, and became a potent symbol of the faith of the Russian Orthodox Church and of national unity and pride.

—K. Corey Keeble



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# The History of Geology

A look at an earlier geological era at the ROM By Arthur Smith

FROM THE ARCHIVES



**Main image:** Dr. Walter Tovell, curator of geology (who later served as the ROM's director), oversaw the reconstruction of Gallery One. Here he observes the Bickell Globe, which opened to reveal the structure of the Earth's interior. **Inset 1:** The entrance to Gallery One. **Inset 2:** Harold Vanstone (left), artist-craftsman, and John B. Hillen (right), chief of Design and Display in the Earth Sciences Division, are shown installing a mural map depicting the world distribution of Precambrian rocks in Gallery Two. **Inset 3:** Technician Peter Tewiss mounts a display illustrating geological surveying in Gallery Two.

Since the ROM's opening in 1914, Earth Sciences galleries have featured prominently. These images from the Museum Archives document the installation of an incarnation previous to the new Teck Suite of Galleries: Earth's Treasures that debuts this month.

The old Geology Gallery opened in two installments, funded by the J. P. Bickell Foundation with a grant of \$107,000. Gallery One premiered on February 15, 1957, officially opened by the Minister of Mines for Ontario, the Hon. Philip Kelly, while Gallery Two was opened in November 1962 by distinguished Canadian geologist Dr. Duncan R. Derry. These "new"

galleries told the story of Earth's formation by focusing on geological processes, such as rock formation, glaciation, mountain-building, and the formation of mineral deposits.

The exhibits illustrated the geology of Ontario, highlighting such notable geological features as the Pleistocene of the Don Valley Brickyard, the stratigraphic succession along the Niagara Escarpment, and a number of famous mining camps. In 1967, the Gallery of Mineralogy was also renewed, opened by Governor-General Roland Michener and built with financial assistance from the Interna-

tional Nickel Company of Canada.

The new Teck Galleries continue the Museum's long tradition of displaying the Earth's treasures, using the latest techniques in display, lighting, and technological innovation to further showcase our magnificent collections and our understanding of the world around us.

Arthur Smith is head of the ROM's Library and Archives.

ROM ARCHIVES



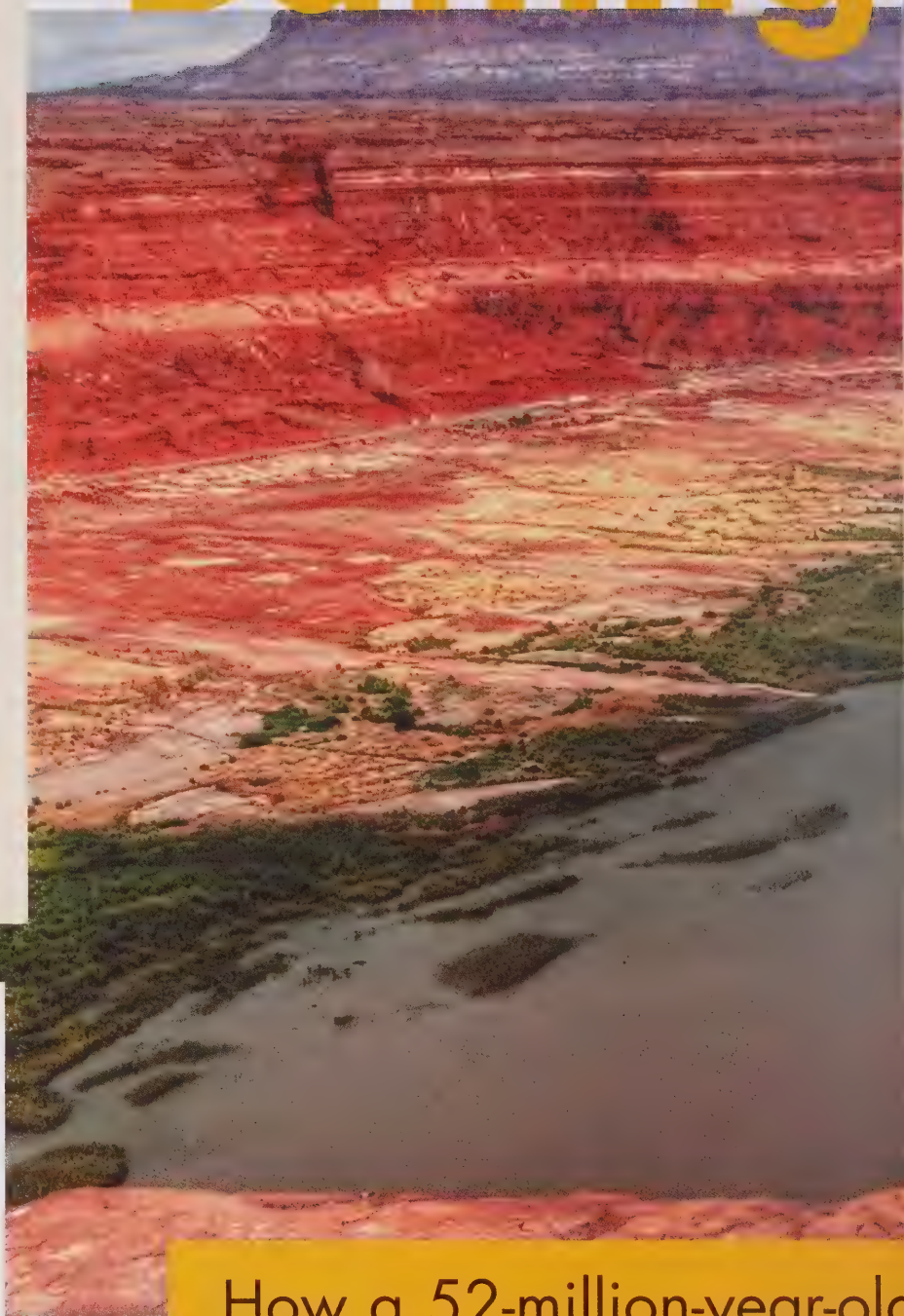
## Recently, I was involved

with the discovery of a 52-million-year-old fossil that would change the way science views bat evolution. The first time I saw the fossil I knew right away that it was not like other bats. For one thing, it is a 20-clawed specimen, with claws on every finger as well as every toe, in contrast to today's small bats, which have only 12 or 14 claws—2 or 4 claws on their fingers. As well, this fossil has a combination of features in its skull and leg bones never seen in any other bat.

I teamed up with several colleagues to study this fascinating specimen. Together we discovered that this is the most primitive bat ever found, ancestral to all living bats. We named this new species *Onychonycteris finneyi*.

For biologists, finding a new species, and finding the “oldest” specimen in a lineage are both exciting discoveries. But even more exciting, the combination of features in this Eocene-aged fossil provided the first concrete evidence to answer a question that biologists, including Charles Darwin, had puzzled over for years. Until the discovery of *Onychonycteris*, all fossil bats looked pretty similar to living bats. So we were left to wonder which of the

# Batting



How a 52-million-year-old  
a longstanding debate on



ROM 55341



# Order

By Kevin Seymour



**Main image:** Rock Formation in Utah.

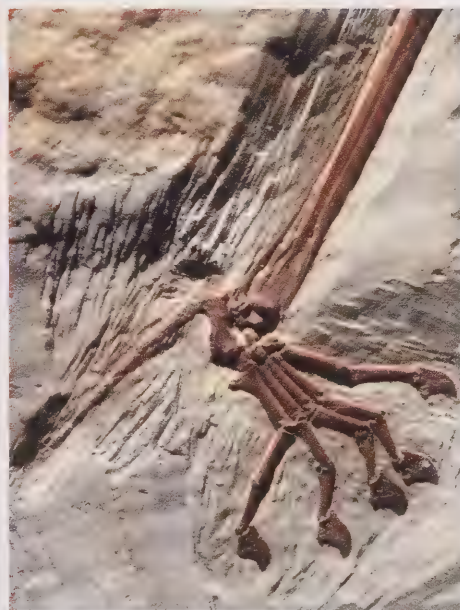
**Bottom left:** Back view of the ROM's fossil bat *Onychonycteris finneyi*.

**Bottom right:** Closeup of the bat's right hind foot, including the long calcar at left.

**Bat fossil photos by**  
**Brian Boyle, ROM**  
**Illustrations by**  
**Marianne Collins**

fossil settled  
the evolution of bats.

WOLFGANG STAUDT





two main bat characteristics—flight or echolocation—came first? Or did the features evolve in tandem? It was a classic chicken-or-egg conundrum.

Different scenarios had been discussed in the scientific literature, but none was supported by any fossil data, so all were plausible. The consensus seemed to suggest that bats learned to echolocate (use sonar to determine their location in space) first—presumably while sitting on tree branches—and only later learned to fly.

Our finding—published in the prestigious science journal *Nature* on February 14, 2008—caused a stir both in the media and among fellow scientists. *Onychonycteris* showed that flight came first.

**You may wonder how** biologists can know how a bat behaved in life just by looking at its skeleton. The answer lies in several regions of its anatomy, which provide important clues. At a glance, I could see that our bat's limb proportions were not the same as those of living bats. *Onychonycteris* has comparatively long hind legs. And, although it has the same elongated finger bones that all bats possess, its forearm bones are proportioned differently. Our bat's limb proportions are quite unusual. In fact, they are unlike those of any living mammal. The animals with the closest proportions to our bat are tree sloths, which hang under branches, and gibbons, monkeys that swing from branch to branch in dense forests. Our bat's having claws on all its fingers suggests that in life, this bat may have climbed trees to forage, and hung from branches to roost using its arms, rather than its feet as modern-day bats do.

This gave rise to an obvious question: if its limb proportions looked so much like those of arboreal animals, was *Onychonycteris* even a bat? Since several other features in our specimen are found only in bats—flattened rib cage, robust clavicle, faceted shoulder blade, keeled sternum (like birds), and of course elongated fingers—the answer was clearly yes. But these very features were proof of something else as well: all are adaptations for flight, indicating that *Onychonycteris* was able to fly.

So, the big question was: could our bat echolocate? Again, the bones held the answer. The skeleton lacks all three bony features of the ear and throat that all of today's echolocating bats possess. This time the answer was no. Our bat could fly but not echolocate.



**Left:** Closeup of the ROM fossil bat's left wing.



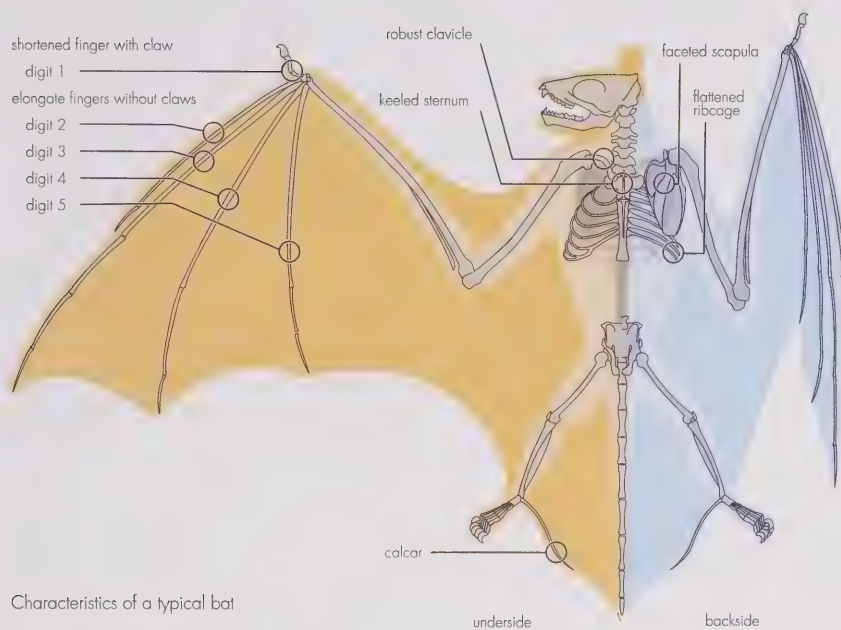
**Right:** Closeup of the bat's left hind leg.

Limb proportions of ROM fossil bat.

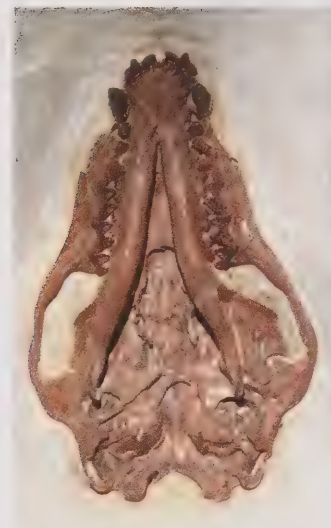
Limb proportions of a modern-day tree sloth.

Limb proportions of a modern-day bat.





Characteristics of a typical bat



ROM 55055

**Top left:** Characteristics of a bat skeleton. **Top right:** View underneath the ROM bat's skull. **Middle:** Representation of the flutter-gliding flight pattern of a mouse-tailed bat. **Bottom:** Front view of the ROM cast of the New York millionaire's fossil bat. Note the tiny claws on all the fingertips. The cast is on display in the ROM's Reed Gallery of the Age of Mammals.



This answered a big question for scientists, but it wasn't the only question that our unusual bat answered. *Onychonycteris* has a long splint-like piece of cartilage called a calcar, which in many living bats projects from the heel into the membrane that stretches from foot to tail. Modern bats use the membrane to net insects in the air. Biologists had always believed this bone, which also holds the tail membrane in position during flight, had evolved after echolocation. But our bat has a calcar, even though it did not echolocate, showing us that the bone and membrane evolved first, likely as an adaptation for flight.

We knew that even without the ability to echolocate, our bat ate insects, since its teeth look like perfectly good insect-eating teeth. The teeth of bats that eat fruit or nectar look different, as suits their diets. So how did *Onychonycteris* catch its food? Probably it gleaned insects off the bark of trees or flowers during the day.

We can only guess that bats began the evolution into flight by gliding from tree to tree as do flying squirrels (which are misnamed because they don't actually fly—they merely glide). One group of living bats gives us a clue about how flight may have evolved. Called the mouse-tailed bats, this group has somewhat more similar limb proportions to *Onychonycteris* than others. Unlike other bats, the mouse-tailed bats use a flying technique called flutter-gliding—just as it sounds, they flutter a bit and then glide. The more similar bone structure between this group and our bat suggests that *Onychonycteris* may have moved in this same way—and that perhaps all bats evolved from a gliding ancestor. This idea had been proposed before, but now we had some evidence to suggest that it might indeed be true.

However it happened, bats eventually developed powered flight, probably the better to escape daylight predators. And only later did they develop the ability to echolocate, allowing them to fly at night to take advantage of the abundance of nocturnal flying insects.

Slightly larger than any Ontario bat, our fossil bat revealed many secrets. Showing that it could fly but not echolocate, our bat skeleton was the missing link science had long sought. Its discovery enabled us to write the early history of bat evolution. ROM



**The depth of the ROM's connection** to the fossil bat *Onychonycteris* was not obvious in the original paper published in the journal *Nature*. How did the world's most primitive bat fossil, uncovered in the US, end up as a ROM specimen?

The story began in 1999. To obtain new specimens for the Museum's new Michael Lee-Chin Crystal galleries, the ROM's paleobiology staff regularly attended the massive annual Tucson Gem, Mineral, and Fossil show, wish lists in hand. The world's largest show of its kind, the Tucson show is a one-stop shop of the Earth's treasures. Hundreds of dealers show tens of thousands of specimens in more than a dozen hotels around town. Amazing deals can be had by discerning buyers, but you have to be quick or risk losing the purchase to someone else. We would rush around to preview everything, trying to make connections and secure the best prices for our limited money, spending long hours taking notes on locations, prices, and legalities, and late nights plotting our buying strategy. By the end of the week, our heads would be spinning.

But it was during one of these trips that the 20-clawed fossil bat caught my eye. The dealer had sold the original fossil into private hands, but had made a mould of it and was offering casts for sale. I bought one and brought it back to the ROM to show mammalogists Judith Eger and Mark Engstrom, who study modern bats. When they saw the specimen they were as excited as I was. "We have to have that bat!" Mark said. We recognized its primitive nature and its potential to re-write the early history of bat evolution. But because of a scientific agreement called the International Code of Zoological Nomenclature, we could not publish research on a cast. We needed a real specimen. The original fossil from our cast was firmly in the hands of a New York millionaire and was not available for research. But we were determined to obtain the *next* fossil that was found.

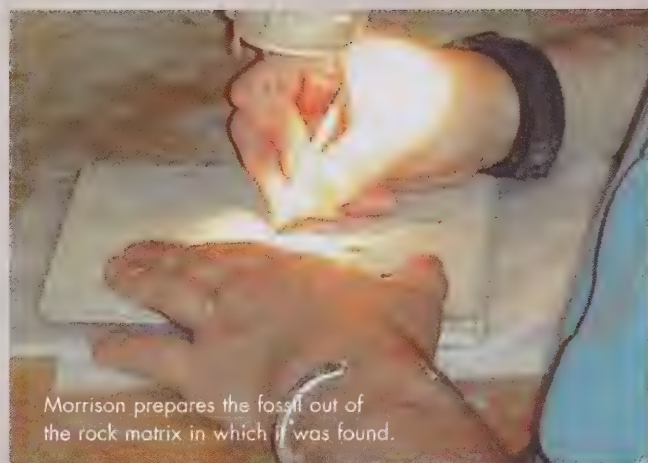
The next year, 2003, back at the Tucson show, I went to all the dealers who excavate fossils from the Green River Formation, the rock beds that yielded the original bat, and asked them to call if



# he ROM Sealed the Bat Deal



ROM technician Ian Morrison



Morrison prepares the fossil out of the rock matrix in which it was found.

they found another 20-clawed bat. Six months later, I got The Call.

Bonnie Finney of Fossil Lake Fish Company thought she had a 20-clawed bat for us. But whether or not she actually did was difficult to determine because of a stipulation of my request: that the fossil not be prepared, but remain intact in the rock in which it was found. Only a tiny part of the wing was exposed in Finney's rock, but she was so sure of what she had that she took the rock slab to a local hospital to have it X-rayed and sent me the results. I was convinced by what I saw. We negotiated a price and the deal was set. Now all I had to do was get the money.

ROM curators are fortunate to have access to funds from the Louise Hawley Stone Charitable Trust. Mrs. Stone wished to see the ROM become a player on the world market for artifacts and specimens. She willed her sizable estate to the Museum to turn that wish into reality, and today grants from the trust indeed enable ROM curators to purchase critical artifacts and specimens to enhance the Museum's galleries and curatorial research programs. My application to the trust was successful and the funds were granted in January 2004. Without Mrs. Stone, this purchase would not have been possible.

Finney, too, was a critical player. As an excavator of fossils, she not only found the fossil, but deciphered what it was, obtained an X-ray, resisted preparing the fossil, and held onto it (without raising the price) in the months it took me to obtain funding. Because of this, we named the new fossil bat species for her—*Onychonycteris finneyi* (*Onychonycteris* meaning "clawed bat").

Another indispensable player was ROM technician Ian Morrison. Technicians often labour carefully for weeks or months to prepare, or uncover, the bones of fossil vertebrates from the rock in which they are encased. Each job is different depending on the hardness of the rock, the relative hardness of the fossil, and its placement in the slab. Technicians are the unsung heroes of vertebrate paleontology. Morrison's steady hand and discerning eye brought this bat back to the light of day in detail after being buried for more than 50 million years.

I asked him to start work at the bat's feet, using the X-ray as a guide.

I suspected that the bat might have an interesting feature not visible on the X-ray or the cast, probably due to faulty preparation of the original. My hunch was correct: this bat had calcars, long pieces of cartilage that proved to be early adaptations for flight, not for catching insects as had been previously thought.

When Morrison reached the ribs, he ran into problems. A peculiar, tiny gap in the rock meant that he couldn't fully prepare them or they'd fall out of the rock matrix. So the thorax had to remain partially prepared. When he uncovered the spine I could finally see that he was preparing the bat from the top side. We really needed to see the underside of the skull and the sternum to answer the questions we had about the echolocation and flying abilities of this new species. This meant that parts of the bat—the skull and sternum—were prepared from one side of the rock slab and the rest of the skeleton from the other. It wouldn't be suitable now for display, but this specimen allowed us to make our discoveries.

To publish the news, I teamed up with Nancy Simmons of the American Museum of Natural History in New York, who is the acknowledged expert on Eocene fossil bats; Gregg Gunnell of the University of Michigan, who early on recognized the importance of this bat and had already started a paper based on the cast of the first specimen; and Jörg Habersetzer from the Senckenberg Museum in Frankfurt, who had already made detailed measurements on a series of German fossil bats, which strengthened our argument considerably. This international team assembled the story and announced it in *Nature* in February 2008.

Today, the specimen is stored in a drawer in the ROM's paleobiology collections, while the cast is on display in the Reed Gallery of the Age of Mammals. Already the original fossil has been studied by numerous researchers. In the meantime, the New York millionaire who owned the original of the first specimen passed away, and his heirs have decided that the fossil should be studied, which is very good news. But it is now too late for it to be the holotype, or name-bearing, specimen. The ROM's specimen holds that honour.

—Kevin Seymour



# To Conserve and



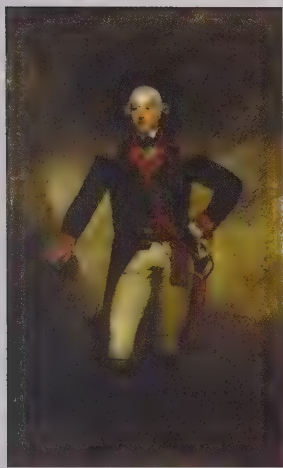
A behind-the-scenes look at  
the skill and detective work  
that goes into conserving artworks.

**BY HEIDI SOBOL**





# Protect



**It was the winter** of 2007, and within the ROM's dark, silent storage vaults 97 paintings awaited permanent exhibition in the airy new Sigmund Samuel Gallery of Canada. My task, as the ROM's new paintings conservator, was to create a plan that would ready this daunting number of works for display.

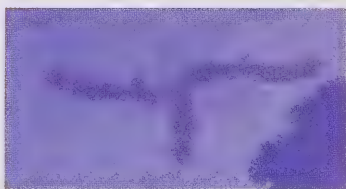
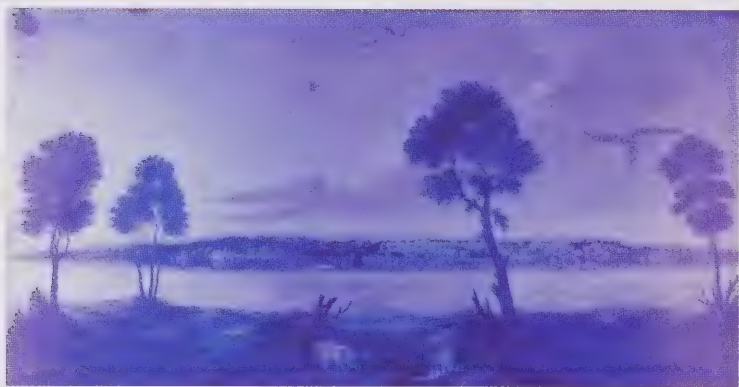
Art conservators are entrusted with the task of preserving art and artifacts. We do this by analyzing and stabilizing the physical components of a work. Most of us specialize in a particular medium: the ROM has conservators of textiles, paper, metals, stone/glass, decorative arts, and ethnographic objects, as well as paintings. In the past when restoring was the main job of the profession, we were called restorers, but nowadays we not only restore, but also research, analyze, document, and preventatively conserve, preserve, and reconstruct objects of

art. The bedrock of the profession is to seek the original intent of an artifact or piece of art—the vision its creator intended the public to see without the sometimes distorting effects of time and old restorations—and to preserve its original integrity with minimal intervention so that it will last into the future.

When we assess a painting for treatment, the methods we use are not unlike a crime scene investigator's. We make site visits, usually to outline travel requirements to ensure a painting's stability during transit or to assess the risk of pest or mould infestation. And at the lab, we conduct routine tests and examinations to try to discern exactly how and where past damage has occurred. One of these tests involves micro-sampling: we take minute paint samples for analysis. Another looks at solvent sensitivity: we use tiny amounts of solvents to







**View of the City of Toronto.** Top: After treatment. Middle: Before treatment. Bottom: Ultraviolet light examination before treatment. **Details:** Left: Overpainted left edge, before treatment. Top right: Multi-directional tear before treatment. Bottom right: Tear as seen under ultraviolet light.

determine the solubility of the paint and surface coating layers. Tests such as these can provide a better understanding of the material composition of the painting's image layers—and they also aid us in developing a treatment proposal. (And sometimes they reveal fakes, but that is for another story.) The most revealing examination methods involve observing paintings under various types of light—raking light, infrared light, and ultraviolet light—each of which provides different clues to what may lie beneath a painting's surface.

When it came to our Canadiana project, some of the paintings were newly acquired, while others were icons of the collection, such as *The Death of General Wolfe* by Benjamin West and studio. They came in all shapes and sizes, and in varying states of repair. To handle the scope of the project, the ROM hired several full-time and two part-time painting conservators. We found many of the 97 paintings to be in stable condition, but a few, about 15 percent, had tumultuous histories—they had a storied provenance, had already endured heavy restorations, or required a new method of display.

Our tasks on three of these paintings exemplify the detective work involved, the cunning and skill that conserving art can sometimes require. These paintings and the stories and images showing how they were conserved are featured in the exhibition *Returned to Former Splendour*, now on display in the Wilson Canadian Heritage Temporary Gallery within the Sigmund Samuel Gallery of Canada.

## VIEW OF THE CITY OF TORONTO

By Edward Taylor Dartnell

c. 1850

105.7 x 186 cm

**The ROM team began** work on the oil-on-canvas painting *View of the City of Toronto* by scanning it with UV light. Similar to “black light,” UV is good at revealing surface anomalies not visible to the naked eye. One problem commonly revealed with



UV light is overpaint—paint added at a date later than that of the original work that is not on top of a repair, but hides the original painting. In this case, the UV scan revealed discoloured overpaint extending along the entire left edge of the painting. This thick discoloured coating of oil paint was hiding serious damage. We found a huge multi-directional tear in the upper right measuring some 32 x 32 cm (more than a square foot). Flaking paint indicated previous water damage, and telltale signs—transparency of paint layers, peaks of canvas threads showing through, and a scoured appearance under the microscope—indicated past overcleaning. Overcleaning, which occurs when paint strata are eroded by too much mechanical force (friction) or chemical means, puts the paint layers in a delicate condition, an oversensitivity similar to allergies in humans. Because our treatment had to be extra sensitive, we used the least aggressive solvents that would gently clean and remove the overpaint.

Fortunately, under UV light, the conservator was able to determine with pinpoint accuracy which brushstrokes were painted by the original artist and which contained newer paint, applied to conceal the significant damage. Under microscopic magnification, with great care the conservator applied solvent, and used mechanical methods, such as a scalpel and dental pick, on the individual brushstrokes to remove the overpaint.

The large tear needed to be repaired from both the front and the back of the painting, but a fabric lining restricted access to the back of the canvas. To see the tear from both sides, ROM conservators had to do a “lining reversal,” applying heat to soften the adhesive and remove part of the lining fabric. To protect the “healthy” part of the painting from undue stress, only part of the lining was lifted. Fill material—in this case gesso, glue, and other additives—had been spackled on to cover the tear’s seam. Once the old fill was removed, each thread was painstakingly re-woven and fused together to create a seamless mend. With a method

## TERMINOLOGY

### ■ CONSERVATOR

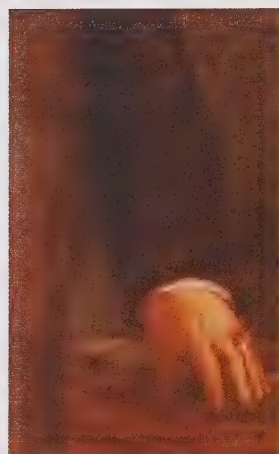
Over the past 60 years, the term “conservator” was promoted by international conservation communities and organizations in an effort to redefine the nature of the work that is performed. At a conference in Rome in 1930, George Stout, a noted conservator and writer on conservation, noted that the conference “seems to have occurred at or near the end of an indefinitely long period of complacency with respect to the conservation of works of art,” during which restoration was “a trade, a craft in which the craftsman could lay claim to diverse and irregular funds of knowledge and ability. By 1930 there was vocal disquiet about this . . . Many art historians and a few curators and collectors complained and asked for more rigid standards of qualification for those who would act as restorers.” It seems to have been at this conference, attended by 150 museum professionals, that the term conservator was first definitively applied to this field of art.

### ■ CONSERVATOR WORKING AT A MICROSCOPE

Working under a binocular microscope, a paintings conservator is able to see minute damages such as tears and paint losses. Micro-testing must be done under the microscope to ensure a paint sample is taken accurately to minimize possible damage and to keep testing areas small and unnoticeable to the naked eye.







**Dr. Oronhyatekha** Top: After treatment. Bottom left: Detail of subject's left arm after treatment. Bottom right: During repair of a tear, acupuncture needles hold threads in place.

called “thread-by-thread” tear mending, the conservator uses a microneedle, glue paste, and a micro tacking iron to fuse each thread back together. As the work progresses—it can take several hours to mend one inch of tear—individual strands are held in place with acupuncture needles. After new filling was added to hide the mend, the conservator inpainted, discretely adding new water-colour paint, which is easily removable in future if necessary, to cover the fill material and any areas of paint loss. The job was finished off with a coat of synthetic varnish, which doesn't discolour as older versions did. What had been a poorly repaired area now looked uniform and intact.

## DR. ORONHYATEKHA

By Frank Pebbles

1896 / 1897

266 x 177 cm

**This portrait of** a notable Native Canadian physician and businessman had been stored flat and unsupported with no existing frame. It had not been viewed upright in more than 30 years. A painting, especially of this scale, needs to be under constant tension in order for the layers of paint and preparation to remain adhered to the canvas. Without tension, the canvas could warp and the paint layers could separate.

An ongoing dialogue with the curator responsible for the painting is pivotal to the conservation process of almost any work of art. Curators and art historians provide insight into the history of the piece—its context, its meaning, and where it fits in the genre and the artist's oeuvre. Conservators provide the material history—the nuts and bolts of what comprises the physical painting.

For this artwork, the conservator determined that the painting was oil on canvas and had likely been revarnished at least once in the past hundred years. Most interestingly, the conservator unearthed a “double signature and date” at the bottom of the painting. It appears that the artist painted the canvas once in 1896 and repainted over it in 1897.



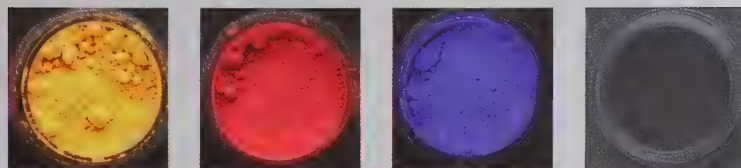
Conservators can't necessarily explain why an artist would do this, although from artists' journals and other documents we know that sometimes the reason is that the artist, the sitter, or the patron, was unhappy with the results and wanted a different, more flattering, or more accurate look. But our diagnostic work can reveal that it occurred, providing an objective framework on which the curator or historian can build or validate theories about the painting.

Another puzzle was that *Dr. Oronhyatekha* had a crudely cut perimeter and no stretcher or frame. The curator knew that the painting had been cut out of its original frame with a sharp implement before its arrival at the ROM. With this knowledge, the conservator was better able to determine the original dimensions of the canvas, which provided the information needed to construct a new custom-made stretcher.

Before the painting could be placed over a stretcher, a new synthetic canvas backing needed to be applied, enlarging the canvas's size enough so that no painted portions would be in danger of being folded over the stretcher's sides. Called "lining," the process is essentially the reverse of our work on *View of the City of Toronto*, for which we removed the lining. Adding a lining involves brushing or rolling on a heat-responsive liquid or film adhesive to the back of the original canvas and then laying the painting over a new larger piece of fabric; using heat and constant suction with a vacuum pump, the two parts are welded firmly together. Because of the painting's large size, the lining had to be done on special equipment at the Art Gallery of Ontario. Their Maxwell combination table, sometimes called a hot table, is larger than the one in the ROM's lab and has a built-in evacuator to create suction. This equipment works like a giant electric griddle pan to heat the painting. The new backing it attaches to the artwork provides added support to the original canvas and paint layers.

Constructing a new frame for this large painting was a monumental task. An elegant

## HISTORICAL PIGMENTS



### ■ INDIAN YELLOW

Indian yellow actually did not originate from India but was introduced there in the 15th century from Persia. Used in watercolour paint and as a glazing colour in oil paint (glaze is a tinted oil-based medium that is typically semi-transparent), real Indian yellow pigment was considered by A. Eibner, an early 20th-century researcher of pigments, as "an incomparably beautiful, deep and luminescent gold yellow in a shade which is achieved with no other pigment." To produce this hue, cows were fed exclusively on mango leaves and their urine was evaporated into a precipitate, then hand-formed into balls. Unfortunately, this caused the cows extreme pain and early death, and was outlawed in 1908. The Indian yellow available today is synthetic, called nickel azo yellow.

### ■ CARMINE

This strong red-crimson pigment is derived from cochineal insects, which have been fed exclusively on the nopal cactus. Their bodies are dried, boiled in water, and precipitated onto an alum base. Carmine can fade in strong sunlight and is fairly expensive. Cochineal is sometimes used in the food industry primarily as a dye, listed as "colour added," "E120," or simply "natural colour." Foods such as yogurt, imitation crab, juices, and Campari made in some countries contain cochineal extract.

### ■ ULTRAMARINE

The pigment ultramarine, from the Middle Latin word "ultramarinus," meaning literally "beyond the sea," was so named because it was imported from Asia by sea. It is a primary component of the mineral lapis lazuli. By the 14th century, it numbered among the most valued pigments, and was often reserved for the robes of Christ and the Virgin. Today, it is the most valuable pigment in the world, ounce for ounce equal in value to gold. Ultramarine has high stability under light exposure, which explains why paintings made with ultramarine blue are still very vibrant. The high costs of transport and processing of the complex rock mixture containing lapis lazuli led to the development of a synthetic version manufactured in France in the 1820s. Nowadays, the synthetic ultramarine blue is the only one commercially available to artists.

### ■ IVORY BLACK

Also known as bone black, ivory black has been used since ancient times and is considered quite a "blue" black. The historic version of this pigment is made from the charring of ivory, and artists and pigment makers often made it themselves by burning ivory in an airtight container. Since ivory harvesting has been mainly illegal since 1989, contemporary ivory black is often derived from mixed animal bones, although old combs, piano keys, and corset boning are sometimes pressed into service to manufacture genuine ivory black today.





presentation was desired, so the conservator and curator consulted to select a simple frame profile with a toned gold-leaf finish. The frame's pieces were custom-milled from basswood and then water-gilded using 13-karat white gold. Despite its luminosity, gold leaf is very thin: you'd need 26 stacked sheets of it to equal the thickness of an onion skin.

## GEORGE TOWNSHEND, 4TH VISCOUNT AND 1ST MARQUESS OF TOWNSHEND

Attributed to Gilbert Stuart

c. 1786

265 x 173.5 cm

**The third major project**, also an oil on canvas, began as a straightforward surface cleansing of dust and grime. One of the most simple and effective solvents conservators use is saliva, gently rolled onto the surface of the painting with a cotton swab, followed by a fresh swab of distilled water. An ideal cleansing agent, saliva contains a great deal of water, weak surfactants (soaps), and a variety of ionic materials, the chief of which is sodium.

As the treatment progressed, we decided to remove the disfiguring varnish that was dulling richly coloured areas of the painting. For both aesthetic and protective reasons, oil paintings often receive a final coat of varnish once the artist has finished. Varnish provides all colours with an optimal level of uniform saturation while acting as a film that protects the painted surface from the harmful effects of dirt, light, humidity, and minor physical abrasion.

Applied by spraying or brushing, varnish forms a thin, transparent layer on the surface of a painting. Historical varnishes were made with tree resin dissolved in a solvent, and have the unfortunate tendency to discolour and degrade over time—necessitating their eventual removal, usually with solvents, such as ethanol. Since the 1950s dozens of surface coatings manufactured in various industries, the vast majority of them synthetic, have been investigated for use as picture varnish—



**George Townshend, 4th Viscount and 1st Marquess of Townshend.** Top: After treatment. Bottom: During varnish removal.



es. In this case we used Paraloid B-72 to replace the older coat of varnish.

This painting contains a compelling example of the phenomenon known as “pentimenti,” ghosted images that can be seen beneath the painting’s top layer. Different from what is seen above, these images signal that the artist reworked certain of the painting’s elements. The original position of Lord Townshend’s feet, for instance, is visibly different from their final positioning. The word *pentimento* derives from the Italian *pentirsi* meaning to repent. Three different conditions can lead to pentimenti: the upper layers of paint become more transparent over time; cracks develop in the uppermost layers to reveal different-coloured paint underneath; or different-textured paint below reveals brush marks going in a different direction than the ones on the top layer.

Historically, restorers often covered up pentimenti with excessive coats of paint, usually to hide awkward areas of the painting, or (unfortunately) to exhibit their own creative flair. Today, pentimenti are considered an integral part of the image and history of the painting. Despite the fact that they can detract from the painting if they are very noticeable, conservators are no longer likely to cover them up with overpaint. In this painting, we left the distracting ghosted images as we found them.

**The Samuel Gallery** now displays these 3 paintings, alongside the other 94 from the storage vaults. While all 97 treatments are complete for now, the conservation process is an ongoing one. Some objects will always need treatment, but the vast majority are under preventive conservation: we aim to maintain proper environmental standards and display requirements.

In essence, a work of art or an artifact is a communication from the past. Viewers are a brief audience to that communication. It is the conservator’s job to be mindful of the painting’s past and to preserve it for the future. ROM

## TOOLS OF THE TRADE



### ■ DAMAR VARNISH CRYSTALS

Derived from the damar fir tree, these “tears” of resin are dissolved using a solvent to make a spirit varnish. This natural resin varnish has been in use for hundreds of years but has a tendency to yellow and become brittle over time. This type of aging is often termed an “antique look” but actually can skew the chromatic balance originally intended by the artist. Nonetheless, it is still used sometimes in conservation work.

### ■ MINIATURE TACKING IRON

Exactly like a clothes iron but the size of a pink eraser, this tool is used to heat an area of a painting requiring treatment. Conservators use the miniature iron to secure adhesive, gently plasticize—or soften—the paint, and aid in humidification, which makes the dried paint less brittle, thereby reducing the chance that the paint will crack during treatment. The temperature on this model can be varied one degree at a time.



### ■ BEAKERS AND FUNNELS

Scientific glassware is used to measure solvents and aqueous mixtures used in the conservation of paintings.

### ■ MICRO-TOOLS

Delicate work under the microscope often requires tools with very fine instrumentation. Microspatulas, scalpels, and small natural-hair brushes all come to very fine points, allowing the conservator to manoeuvre with precision.

### ■ LOCAL EXHAUST VENTILATION

Solvents play a big role in paintings conservation. Some—such as overpaint removers—can be quite noxious. Local exhaust ventilation, or elephant-trunk ventilation, is used to evacuate the fumes precisely where they are generated, usually right at easel level.

### ■ LIGHT METHODS

**Raking Light:** Accentuates the topography of a painting and can reveal canvas undulations, peaked or cracking paint, and sometimes underpaintings found beneath textural pentimenti. **Transmitted Light:** Reveals cracks, tears, or repairs and can also sometimes show underdrawings or design changes. **Ultraviolet Light:** UV light is useful for revealing surface anomalies not visible to the naked eye, such as overpaint—paint added at a date later than that of the original work.



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# Beyond the Brush

A set of 17th-century Chinese fan paintings epitomizes the work of an artist who eschewed the usual tools of the trade. **By Klaas Ruitenbeek**



*Man with Staff* was painted by Gao Qipei using his fingers and fingernails dipped in ink. 17 x 52 cm (6 3/4 x 20 1/4 in).

**One of China's** most intriguing painters, Gao Qipei, did not use a brush but painted directly on paper or silk using his ink-dipped fingers and fingernails. I first saw Gao's works years ago when I still worked in the Rijksmuseum, Amsterdam. In 1992 I curated a large exhibition on Gao (1660–1734) and a group of painters closely associated with him. The show was called *Discarding the Brush*, and one of its star pieces was an album of 12 fan paintings Gao had painted in 1697/1698, when he worked as a government official near the city of Kunming, in southwestern China.

The album is important not only because it is one of Gao's most in-

spired and characteristic works, but also because it so harmoniously brings together painting, written inscriptions, and seal impressions—Gao hand carved most of the many seals he used.

In his writings Gao made clear that he had two main reasons for painting as he did: he did not want any artificial tool to stand between his ideas and the paper or silk, and he was fascinated by the often accidental effects that resulted from his novel technique. One of the many seals that Gao liked to impress on his finished works puts it succinctly: *Bi mo zhi wai*, “Beyond brush and ink.” Gao's grandson Gao Bing wrote a book in 1771 about his famous grandfather, in it explaining:

“... the fingers can express what the brush cannot. The brush is superior in professional accuracy, while the fingers are superior in expressing the idea.”

For the 1992 exhibition, I borrowed Gao's album from its owner, a private collector in Tennessee. But last January, during a visit to art dealer Paul Moss in London, I was happily surprised to see the album again. It was for sale. The ROM already owned one fine painting by Gao Qipei, and some works by painters inspired by him or who had a similar background. It made sense to build on this existing strength and, by adding this masterpiece, create a truly significant group of related works. Thanks to the





**Top:** The stag, here approaching a man who holds his hands in a gesture of greeting, is normally a symbol of wealth. **Middle:** This image of a misty cliff with a bird flying in the lower left corner was painted while the artist travelled through Kunming. **Bottom:** The image of the painter in a rowboat with his donkey and a boatman (also shown in detail) refers to the artist's departure from his post in Yunnan to return to Beijing.

Louise Hawley Stone Charitable Trust  
we were able to purchase the album.

Another intriguing aspect of the album was that its inscriptions contain biographical information about the artist, even uncovering a previously unknown

connection to our own Ming Tomb (see "A Link to the Man from the Ming Tomb," page 41). One of the leaves, showing a misty cliff and bird, is inscribed in Gao Qipei's characteristic calligraphy and translates as: "Shallow

waters, deep mountains, a scrap of sky, / A howling, stiff wind, the constant roar of the rain. / There is nothing to do but escape this feeling of oppression in my dreams, / Night after night a goose that returns, as tiny as a coin. Painted with the fingers by Gao Qipei of Tieling in an inn at Kunming." The seal added by the painter reads *Yijian*, "With one fingertip." (The two larger seals were added in later centuries by collectors.) The mention of the inn at Kunming, the capital of Yunnan, makes it clear that Gao was travelling.

He had painted the fan leaves as a souvenir for a friend, Master Li Songke, when Gao left his post in Yunnan to return to the capital, Beijing, where he had been appointed vice director of the Board of Works. Li Songke was a wealthy salt commissioner and a patron of Gao Qipei's work. The leaf showing the painter seated in a ferryboat with his donkey, the oarsman aft, also refers to his departure.

Apparently, Gao hadn't exactly struck it rich in Yunnan, for in the leaf showing a stag approaching a man who holds his hands in the gesture of greeting, he writes: "This stag, always aloof from the world, / Frequently met an Immortal. / It was wrong to sport antlers, / For all it gained was a bellyful of poverty." The stag, normally a symbol of wealth, probably stands for the painter, and the Immortal for his friend, for he concludes: "In the fifth lunar month of the year *dingchou* (1697) I gave this to master Songke in a Kunming inn, to make him laugh. Life from the fingers of Gao Qipei."

In an unexpected twist, the twelfth and last leaf of the album was executed eleven years later. It tells how the painter met with his old friend again, this time in the city of Yangzhou, the centre of China's salt trade. The leaf has a poem with the following dedication: "In April 1708, I had to go to Beijing for an audience with the emperor. Passing through



Yangzhou, I paid a visit to the salt commissioner Li Songke. To my joy, everything was the same as it had always been; I felt we never had been parted. . . . This impromptu poem is meant as thanks; I hope for a smile and your instruction."

It seems that Li Songke had had the fans that Gao Qipei painted for him in 1697/1698 mounted in an album, together with one empty leaf, hoping that at some time a worthy hand would grace it with a painting or calligraphy. He must have been pleased that Gao Qipei himself could complete the task.

Klaas Ruitenbeek is the Louise Hawley Stone Chair of Far Eastern Art.

## A Link to the Man from the Ming Tomb

**Painter Gao Qipei** came from a military family and became commander-in-chief of the Chinese Army of the Plain Red Banner. The idea of organizing the army under banners came from the Manchu people, who in 1644 overthrew the Chinese Ming dynasty and established the Qing in its place. Gao Qipei's father, also a commander, was killed during the 1673–1682 revolt that tried to restore the Ming to power. The leader of this revolt, Wu Sangui, was a nephew of Zu Dashou—the man buried in the ROM's large Chinese tomb. One of Zu's sons also numbered among the rebels.

In 1678, Wu Sangui proclaimed himself emperor shortly before his death and the ensuing collapse of his rebel empire. His capital was in Kunming, the same city where, 20 years later, Gao Qipei painted his album leaves. Gao mentions both his father's killing and Wu Sangui in his inscriptions. These men were all protagonists in the Ming-Qing war, and both the ROM's album and tomb bear witness to this tragic episode of China's history. —K.R.



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		<b>PARIS, FRANCE</b> May 23 to 31, 2009
		<b>CHINA</b> October 12 to 30, 2009
		<b>BARCELONA</b> October 15 to 26, 2009
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# MATERIAL BALL DIAMONDS

**On November 13, 2008,**

*Material Ball: Diamonds* sparkled as 300 special guests were welcomed to the exclusive fundraising gala featuring the North American premiere of the Spring/Summer 2009 collection by Paris-based fashion designer Giambattista Valli.

Adding glamour to this exceptional evening of beautiful fashion and architecture hosted by *FashionTelevision's* Jeanne Beker was a private viewing of the spectacular exhibition *The Nature of Diamonds*. This signature event dazzled more brightly because it supported a meaningful cause—all funds raised went to the ROM's Burnham Brett Endowment for Textiles and Costume, as well as the textiles initiative of the Renaissance ROM campaign.

The ROM recently celebrated the opening of the new Patricia Harris Gallery of Textiles & Costume, and *Material Ball: Diamonds* provided the means to properly care for and rotate the fragile collections in the ever-changing gallery.

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**Top row, left to right:** Kelly Barnicke, Jennifer Ivey Bannock, Olivia Bannock; Dr. Marie Bountrogianni (president and executive director, ROM Governors), *FashionTelevision's* Jeanne Beker. **Middle row, from left to right:** Simona and Alex Shnaider; runway presentation of Valli fashion; Donna D'Cruz with Giambattista Valli.





# FACT? OR FICTION?

## KEEPING THEM GUESSING AT FACT? OR FICTION? 2008

**Fact? or Fiction?**—the ROM's trademarked annual guessing game where guests match wits with ROM curators to decipher the true nature of 20 objects from the ROM vaults—welcomed hundreds of guests on October 16, 2008. Our grand prize winner is planning her great escape to Bangkok and Singapore and the runner-up has tickets to attend next year's exciting event. Our door prize went to a guest new to our event. Congratulations to our winners.

Of course, the big winner at *Fact? or Fiction?* is the ROM's Research Endowment Fund. All proceeds from this event go to support ROM curatorial research conducted here in Canada and around the world. The ROM has the largest field research program of any museum in the country. Support each year through this event helps us maintain this status and makes it possible for staff to continue to conduct research in myriad fields of study in world cultures and natural history. This research helps us all to learn from the past and to plan for a better future. Information about next year's event is available at [rom.on.ca/factorfiction](http://rom.on.ca/factorfiction).

*Fact? or Fiction?* 2008 was made possible with the generous support of the following:

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Bottom row, from left to right: Samantha Brickman, Kimberley Newport-Mimran, Joe Mimran; Bill Harris, Patricia Harris, Dr. Marie Bountrogianni, Ioannis Tsanis.





## THE GLITTERING LEGACY OF DE BEERS CANADA

**Visitors to** *The Nature of Diamonds* may be surprised to learn that Canada has become the world's third-largest diamond producer by value, right behind Botswana and Russia. De Beers Canada has played a major role in that success. Earlier this year, the company opened two new diamond mines. One of them, the Snap Lake Mine near Yellowknife, NWT, is the first De Beers fully underground mine outside Africa and the second, the Victor Mine in northern Ontario, is the first diamond mine in the province.

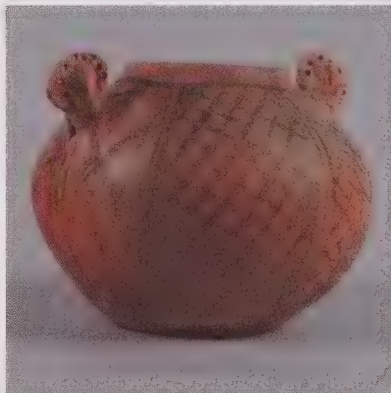
During the building of these mines, the company has built strong relationships with local communities, signing Impact Benefit Agreements with numerous First Nations near both mines. "We believe that meaningful consultation is required to develop mutual trust and long-term cooperative relationships," says Jim Gowans, president of De Beers Canada. In South Africa, in 1996 the company launched the De Beers Shining Light Diamond Design Awards to support the country's diamond jewellery industry by promoting young talent, developing their skills, and offering a

showcase for the work of established designers and goldsmiths. For the ROM's showing of *The Nature of Diamonds* only, De Beers loaned numerous pieces of award winning jewellery.

The ROM is grateful to De Beers Canada for its support.

## NORTHLAND POWER HELPS REVEAL TRYPILIAN CULTURE

In late November, the ROM broke new ground when it opened the first museum exhibition to reveal the ancient culture of the Trypillians to North American audiences. This pre-historic people existed 5,000 to



7,000 years ago in what is now Ukraine. But the sophisticated culture is mysterious: it created the largest settlements anywhere in the world at the time and then inexplicably disappeared, leaving behind models of buildings-on-stilts, puzzling cultic items, and pottery that was second to none in the Neolithic world.

Northland Power, an industry-leading independent power producer, partnered with the ROM as the exhibition's presenting sponsor to bring this compelling story to the public. The company has developed several power plants in Canada using biomass,

natural gas/cogeneration, and wind technologies. Northland Power and its owner have business interests in Ukraine, and have been very active there supporting cultural and educational activities and charities, making their connection with the exhibition a natural fit. Northland Power and the ROM have worked closely with the Ukrainian-Canadian community and many other partners to make this landmark exhibition possible.

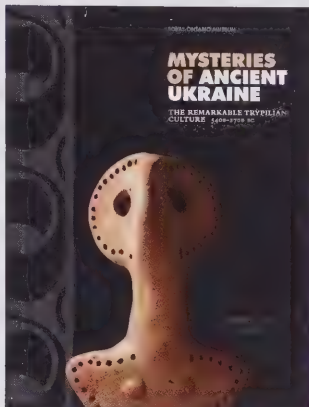
## VANBOTS BUILDS ON FAMILY FOCUS

"Wow, this place is seriously awesome." "We love the microscope. It rocks!" "I didn't know knight's armour was so heavy." These are some of the things you're likely to hear kids saying at the ROM during ROMkids Weekends. Every Saturday and Sunday, thanks to the generous sponsorship of Vanbots, the ROM is offering hands-on activities or crafts, our dinosaur mascots Gordo or Gertie are out greeting kids, and of course, gallery favourites such as the Bat Cave and the discovery galleries are always open for fun.

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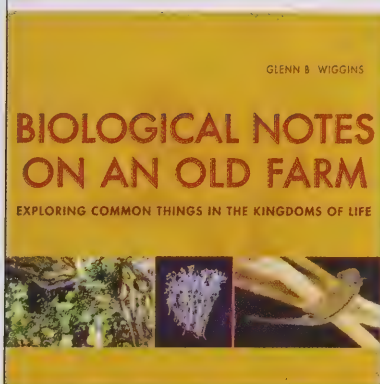
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The ROM has an incredibly rich mineral collection today thanks to this couple. On their world travels together they amassed one of the finest private collections in Canada. Purchased by Inco Limited and gifted to the ROM, the Frohberg Collection is enthusiastically described by curatorial staff as "fabulous," "exquisite," and "rare."

When Hertha passed away peacefully last year, at age 104, she memorialized her life-long love by creating the Dr. M. Hans Frohberg Fund through a gift in her will. The annual income from this permanently endowed fund will allow the purchase of new minerals and gems for the Museum.

Hertha and Hans lived extraordinary lives. Their legacy is their contribution to the science of mineralogy and the enjoyment Hertha's gift will bring to future generations of ROM visitors.

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Mark Osbaldeston

# The City That Could Have Been

Mark Osbaldeston, author of the new book *Unbuilt Toronto: A History of the City That Might Have Been*, speaks with Francisco Alvarez, managing director of the Institute for Contemporary Culture. The ICC presents the exhibition *Unbuilt Toronto*, organized by the Toronto Society of Architects. It is on display until January 11, 2009.

**Francisco Alvarez:** Describe the time periods and projects covered in the exhibition.

**Mark Osbaldeston:** The images fall into two groups: projects chosen from the book, and projects chosen by a jury, based on a call sent out by the TSA to practising architects and designers. The projects from the book run from the early 19th century to the 1980s. I think people will find some mega-schemes from the late 1960s and early 1970s particularly interesting. The projects selected by the TSA generally will be more recent.

**FA:** What was the most surprising discovery you made?

**MO:** There are lots that I could mention, but finding out that the CN Tower (or its “unbuilt” equivalent) might have ended up in North York would definitely be up there. North York wanted a telecommunications tower as the centrepiece for the new downtown it was planning in the mid-1960s. They were counting on the CBC as a major tenant, but the broadcaster preferred the railway lands site.

**FA:** How does the city’s built form affect its particular identity?

**MO:** I think it’s fundamental. When you picture any major city in your head, it’s that city’s unique built form you think of, whether it’s the boulevards of Paris, Rockefeller Center in New York, or whatever. The way any city develops is the result of a lot of choices, which is something this exhibition reminds us of.

**FA:** Which of the unbuilt projects in the exhibition would have made the greatest improvement to present-day Toronto?

**MO:** I have often said that Federal Avenue, which would have connected Union Station to what became Nathan Phillips Square, would have been a great improvement to the city. But the earlier “walks and gardens” scheme was probably a more fundamental loss. In the early 19th century, before the railways came into the picture, the waterfront was set aside—actually placed in trust—to create walks and gardens, so people could enjoy the lake. That seems like a pretty sensible idea.

Osbaldeston’s book *Unbuilt Toronto* (Dundurn Press, 2008) is available at the ROM Museum Store.

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